"Hurrah for October!"

"HURRAH for October!" That's what business men all over the country are yelling. And good reasons they have to be jubilant! For October was a month of record-breakers in various divisions of industry and commerce in these United States.

The record trading for all time on the New York Stock Exchange was in October. Fifty-three million shares plus were bought and sold, an average for the 27 working days of 1,960,000 a day. The next biggest month on record was October, 1924, with a volume of 41,000,000 shares.

In spite of the croakings of the "wise-in-their-own-belief" prophets that the stock market would experience a setback in October after the sustained advance in September, it did nothing of the kind. On the contrary, the most prolonged and sustained trading on record was the result. Why? Because, for the first time since the war, economic factors are set right for a long period of sustained business. All divisions of industry are nearer a balanced basis than at any time in the past ten years.

The farmer can exchange his products with the commodity producer and both make profits on the transactions.

Then both Capital and Labor are making money. Labor, especially skilled labor, has had ten years of exceedingly high compensation. The average cost of living, when compared with the average wages received by labor, shows a handsome margin in favor of wages.

These indefatigable money-diggers have been saving money at an unprecedented rate also, and when the stocks and securities of "A-1" American industries, paying dividends, sunk to the low value of last fall and the past spring, these prosperous savers by the thousands bought them, took them out of the market and locked them up in their strong boxes. They are continuing to make money, and the prosperous people of this country are continuing to buy good stocks and bonds.

The reason for no recessions is found in the fact that we have become a nation of rich investors. America, financially, "sits on top of the world." The whole world owes us money and is paying us interest. We have money to spend and money to invest, and the more we invest the more we have to spend. That's what makes active business and prosperous times. We are just beginning!

Then add to all the above the fact that the people of this country have renewed their confidence in their country's institutions by investing heavily in them. October showed them that their confidence was well placed. Hence, we have more and more confidence exhibited in our commercial and industrial activities.

The U. S. Steel stock, that barometer of trade, hit the highest price since 1920.

The Ford Company broke all its previous records by turning out 204,827 cars and trucks. They are now preparing to carry out production schedules calling for 10,000 cars per day.

The cement and building industry will break all records for production in 1925. October activities made this a certainty.

Farmers are having another big, prosperous fall—selling their wheat for $1.40 to $1.50 a bushel, and obtaining $1.05 a bushel for their corn by feeding it to cattle and hogs.

And did you see the record-breaking statements of the two leading mail-order houses at Chicago? Sears-Roebuck's sales for October gained 27.6 per cent over October, 1924, while Montgomery Ward sales were 27.24 per cent gain over the same month in 1924.

These records reflect and confirm the gratifying return of increased prosperity in the agricultural districts. Even Wall Street and La Salle Street were astounded by these wonderful records, and the investors in those stocks are thereby buttressed in their investments and their earnings.

Railroads, motors, industrials, mail-order houses, even oils, are all reporting increased and highly gratifying earnings. Why should the American investor hesitate? We have come to the time of sustained production, sustained and balanced industry, sustained confidence, all of which will result in sustained profits.

No wonder, then, that Judge Gary forecasts that we are entering the era of unprecedented prosperity, and significantly adds that the time is not far hence when you will refuse to accept orders!

Every index—industrial, commercial and economic—points unmistakably to it. And now that it has appeared and a record-breaking October is shouting at us, let us all now together shout back,

"HURRAH FOR OCTOBER!"

There is a Goodrich Rubber product for every Industrial demand. Belting — Transmission or Conveying; Hose —all kinds; Valves, Packing, Molded Goods.

Ice at one end— Steam at the other

This belt is used by the Gilman Paper Co. of Gilman, Vt., to transport pulp from the ground wood room to the surplus pulp storage pile. An easy job *IF* you don't count weather conditions.

In winter it is hot in the wood room and the air is full of steam while out on the storage pile it sometimes goes to forty below! These extremes sap the life from an ordinary belt in short order—yet this Goodrich Belt stuck to the job for eleven years!

Every belt leaving the Goodrich factory has this wonderful capacity for service built into it. Highest quality—fifty-five years of experience are the reasons for its superiority.

Specify Goodrich for the usual drudge work or the spectacular job, sure that it will always deliver.

THE B. F. GOODRICH RUBBER COMPANY
ESTABLISHED 1870 *Akron, Ohio*

Goodrich

CONVEYOR BELTS

"Best in the Long Run"

Another Contest for Best Accident Records

AS ANNOUNCED at the sessions of the Paper & Pulp Section of the National Safety Council at the Fourteenth Annual Congress in Cleveland, THE PAPER INDUSTRY will offer a Loving Cup to be contested for by members of the National Safety Council for the best accident record for the first six months of the year 1926. The rules of the contest will be sent to all paper mill members of the National Safety Council in time for each mill to organize for this special safety campaign.

The contest for the best accident record during the month of August, 1925, was productive of very good results. The idea of a contest is a popular one, and the response by members of the Paper & Pulp Section was very good. Each mill who entered into the contest benefited to a great extent; the spirit of competition was thoroughly aroused in every workman who united in their efforts to operate without a lost time accident, and to make their mill a safe place to work.

The rules under which the August, 1925, competition was held were somewhat complicated, but will be simplified for the next contest in this way: The basis for the competition will be the best severity rate any mill will be able to secure regardless of size of mill or the operations conducted. If it should happen that more than one mill will be tied for first place at the end of six months, the contest will continue indefinitely among all mills until this tie is broken. By so doing, the members of the Paper & Pulp Section will have their accident records calculated by a method and on a basis that they have been familiar with for years, and the simplification of the calculations through the elimination of the equalization factor, used in the August, 1925, contest, eliminates further chances for errors.

The equalization factor was a method by which the hazards of the individual mills were rated. It was thought best to dispense with the equalization factor for the 1926 contest because all mills are constantly working with their own accident problems and everyone wants to make as good a record for their own sakes as they can. If a mill has many hazards and makes a good record, the existence of the hazards is something to their credit in being successful to prevent accidents. If a mill has few hazards, the use of an equalization factor works out unfavorably to them. What is desired by THE PAPER INDUSTRY and the National Safety Council is for every paper mill organization to work as hard as they can to eliminate accidents in their own mill, and if they do that, there won't be any chance that individuals in any safety organization can rely upon alibis, or excuses for not securing good results.

All participants will be asked to report their experience each month, and this will be announced once a month. This announcement will stir up interest in the contest and will give contestants an approximate idea of how they will stand from month to month. Because the contest will last so long, every mill in the membership of the National Safety Council has a good chance of being the winner. Even though they may get off with a bad start, they can overcome such a disadvantage by working harder to keep a clear record. Likewise, the mill who makes a clear record must work all the harder in order to maintain their standing.

Final results of the contest will be announced at the sessions of the Paper & Pulp Section at the next Annual Congress if possible. There is quite an interval of time between June 30, the scheduled close of the contest, and the official announcement, but that will enable all contestants to make accurate reports for all injuries that have occurred. Sometimes, there is considerable time elapsing between the date of injury and the time the man injured returns to work, or the extent of his injuries is known.

Observations of a Traveler

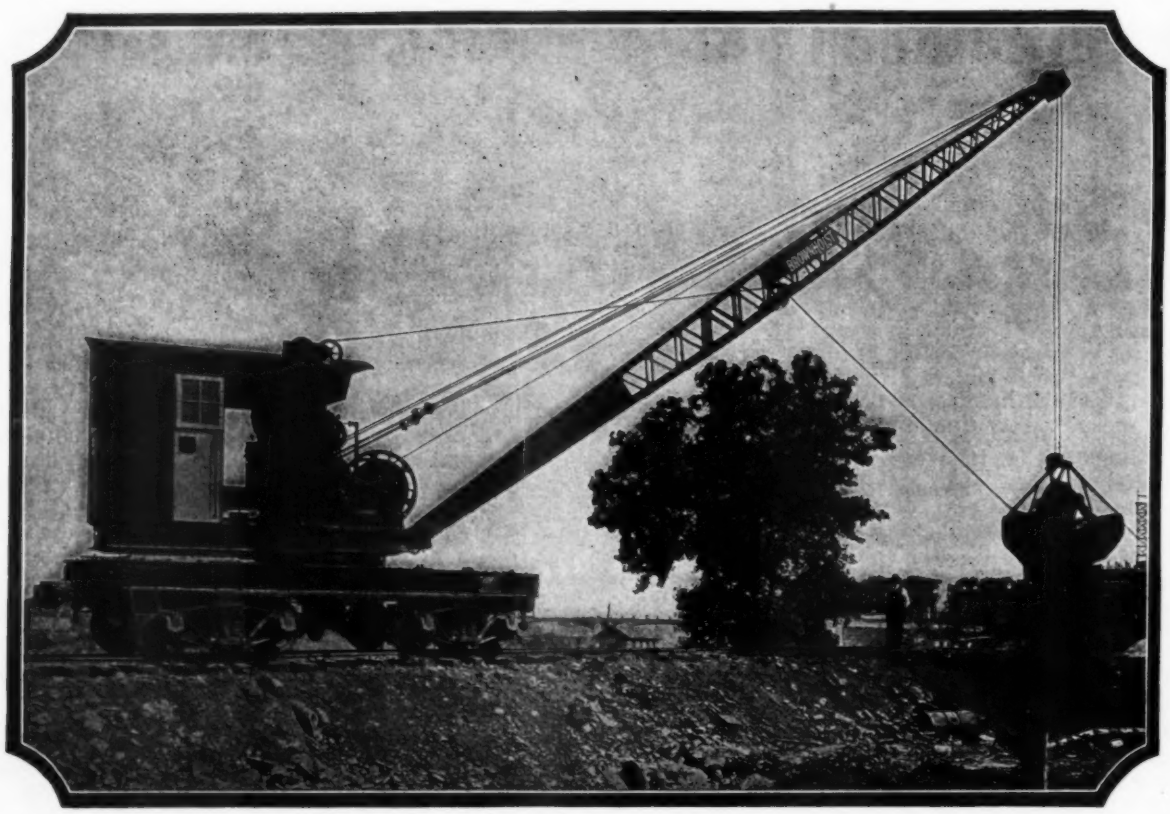
RECENT tours of pulp and paper plants with note book and camera covered a wide range of country. Starting from New York, the course of the Connecticut River was followed from Springfield, Mass., to Groveton, N. H., near the headwaters of that stream, which is so celebrated in the annals of papermaking. Holyoke always has a potent attraction for men connected with the industry, it being still the center of papermaking activities. Numerous mills are within easy reaching distance by trolley, rail or motor car, and the observer and chronicler of conditions and problems affecting the industry cannot afford to overlook the opportunities that present themselves there for walks and talks with mill men. The word "walks" is used advisably, for many miles are often traversed in going through the different departments of a big and busy paper plant.

In a city like Holyoke, which depends on its many paper mills for its prosperity, there are, as might be expected, numerous engineering plants and foundries in which are manufactured special machinery and equipment for use in the manufacture of paper. The Holyoke Machine Company is a prominent concern, known wherever paper is made, but there are wire manufacturers and makers of trimming and cutting machinery whose operations are known only in a special and somewhat limited fashion, chiefly among paper-mill architects and engineers.

Visit to Koegel's Machine Shop

The firm of Charles Koegel's Sons, Inc., Holyoke, whose line of slitters and knife grinders is universally employed in the paper and pulp mills of the United States and Canada, is a case in point, since this firm is not so well known to the readers of paper trade periodicals as some other concerns that might be named.

After a visit to the foundry and machine shops, where Koegel specialties in patent top slitters for fast-running paper machines are to be seen in the making, no time was lost about observing the slitters



G-E's Choice—A Good Electric Crane

You need not forego the many economies of locomotive crane service just because of costly coal or a poor water supply. With a Brownhoist electric crane you can tackle your handling job in the same efficient manner as the General Electric Company and scores of other users do theirs.

The Brownhoist electric crane has the same speeds and will give the same dependable service for which all Brownhoists are so favorably known. You can count on a big day's work from it on bucket, hook or magnet work. And as you know, the locomotive crane is a very economical way of handling materials.

If you are interested in the savings that can be made by the use of a Brownhoist we would like to go over your layout with you. There is no obligation of any kind in talking the matter over with us.

The Brown Hoisting Machinery Co., *Cleveland, O.*

Branch Offices: New York, Chicago, Pittsburgh, San Francisco, New Orleans, London, Eng.

BROWNHOIST

MATERIAL HANDLING MACHINERY

and attachments in operation in nearby mills. The latest model of the Koegel top slitter is equipped with ball bearings; it is bevel edged and gives a shear cut. Protected by patents in the United States and Canada, it is used on all modern fast-running paper machines and winders, sixteen or more being in operation on the four 234-in. Fourdriniers of the big newsprint mill at Corner Brook, Newfoundland, the owners of which boast of having every new form of equipment which has justified itself. The lower slitter attachment is of the simplest construction and is provided with a double cutting edge.

It was Charles Koegel who constructed the first Hy-vac sluice for taking off water on cylinder board and paper machines, its purpose being to prevent waste water from accumulating in front of the couch rolls.

The Hy-Vac Sluice

The Hy-vac sluice was seen in operation at one of the mills of the Chemical Paper Manufacturing Company, in Holyoke, where the Koegel slitters are also used. The inventor of the Hy-vac sluice, Harry E. Lindquist, is one of the executives of the Chemical Paper Manufacturing Company, and he was naturally enthusiastic over its merits. The chief claim made for the sluice is that it obviates the possibility of blows or blisters forming between the pulp layer and the felt, or on the board between the pulp layers while in process of manufacture on a board machine. The manner in which the sluice operates could be observed through glass windows in each end of the main section.

Mr. Lindquist is also the inventor of a cheap form of wooden skid for shipping paper board. This is capable of packing 2,800 lb., the equivalent of fourteen 200-lb. wraps, thus effecting a saving of 140 lb. of wrappers, or $5 a ton on a shipment. The skid can be put together at a cost of $7.50, which represents the cheapest form of skid in use for the convenience of box manufacturers handling large tonnages. The cost of the skid is, of course, charged on the invoice and credited on its return by the consignee.

A Stop-over at Montreal

On the way to the Kalamazoo meeting of the Technical Association from the superintendents' meeting, at Groveton, N. H., a stop was made at Montreal to view some of the important developments going on at McGill University and the reconstructed Forest Products Laboratories. A visit was first paid at the offices of the Canadian Pulp and Paper Association, where we were given the important news by Mr. Beck, the courteous and obliging secretary of this association, that Prof. Harold Hibbert had been chosen to occupy the newly established chair of the Industrial and Cellulose Chemistry at McGill University. This chair was established by the recent endowment of $200,000 by Mrs. E. B. Eddy, widow of the founder of the E. B. Eddy Company, Ltd., for the promotion of scientific research in the chemistry of cellulose and its derivatives. The new chair will have the financial support of the Canadian Pulp and Paper Association, which has undertaken to pay a stipulated sum each year amounting to half the cost of its maintenance.

New Chair Established at McGill

Prof. Harold Hibbert, D. Sc., Ph. D., resigns the chair of chemistry at Sheffield Scientific School of Yale University in order to take up his new position. He is widely known for his researches on the constitution of cellulose, has always taken an active part in the affairs of the cellulose section of the American Chemical Society, and is the author of a graphic formula for cellulose which has been accepted by many authorities; this supposes cellulose to be an anhydride of glucose. He is a comparatively young man, having first seen the light in Manchester, England, August 27, 1877. There he was educated and received his early training in chemistry. After he was graduated from Victoria University, Manchester, as Sc. D., he taught chemistry at the Imperial College of Science, London. Then followed a term as research chemist at the laboratories of E. I. DuPont de Nemours & Co., and a fellowship of four years at the Mellon Institute before he became professor of chemistry at Yale University. Professor Hibbert is now in Europe, where he is engaged in an investigation of recent and prospective developments in pulp and paper and cellulose-using industries, and will not take up his new duties at McGill until January 1, 1926.

Forest Products Laboratory

Under the guidance of Capt. E. Parke Cameron, chief of the pulp and paper section of the Forest Products Laboratories of Canada, the writer was taken on a tour of the old and new buildings, which house the activities of the cellulose chemists, and noted the increased facilities for research and experimental work on industrial problems which will soon be at the disposal of the staff.

At the laboratories of the American Writing Paper Company, in Holyoke, Mass., Gösta Hall has developed an interesting piece of apparatus for disintegrating paper preliminary to testing the material for its acidity or alkalinity, and at the Forest Products Laboratories of Canada, Captain Cameron is also using a pulp disintegrator for shredding pulp and isolating the fibers in such a way as to avoid any hydration of the product. A modification of the Schopper instrument for controlling the slowness or freeness of pulp is also under study, and it is hoped to perfect a standard method of testing freeness that can be adopted universally by the mills in Canada.

Be Thankful

EVERY one in America celebrates Thanksgiving Day, feeling that it is necessary to—at least stop work on this one day of the year—whether we really have anything to be thankful for or not. It is indeed an unhappy man who feels he does not have anything to be thankful for at least once a year. Wouldn't it be better, however, if we were really grateful every day of the year for life, health, happiness, prosperity and the thousand and one other good things that are coming to us constantly? So let us on Thanksgiving Day kneel in thanksgiving to our Maker, who furnishes us with all that we need, and then let us follow this up on the following day and each one of the next three hundred and sixty five days by taking a few moments to be grateful to our heavenly Father who is constantly watching over us and caring for us.

Trained Men to Help You

A CENTURY ago it would have been possible for one man to master the whole field of engineering knowledge. But the science has made such rapid strides, and new discoveries have followed one another in such quick succession, that today it would be a life task merely to read the books that have been written on engineering subjects.

Consequently, no engineer today can hope to know the whole field of engineering. Each man must choose his specialty and concentrate upon it. And even then he must study constantly if he is to keep in touch with all the new developments.

The lubricating engineers of the Standard Oil Company [Indiana] have chosen the study of lubricants as their life work. By years of research and investigation, they have acquired a knowledge of lubricants and lubricating problems which could not possibly have been gained by any engineer who had not made this study his specialty.

You are offered the services of these engineers, without charge. They will investigate the requirements of the machinery you use in your plant, and will recommend the oils and greases that will bring the best results.

Standard Oils and Greases

when they are properly used, will reduce friction, prevent waste of power and reduce depreciation costs. But to make sure that you are using the correct grades for your equipment, you should have the advice of our engineers.

If you will phone or write us, we shall be glad to arrange for a survey of your plant

STANDARD OIL COMPANY

(Indiana)

General Offices: 910 S. Michigan Avenue Chicago, Illinois

THE PAPER INDUSTRY

REG. U. S. PAT. OFF.

Vol. 7 NOVEMBER, 1925 No. 8

Standardizing Power Production in the Paper Mill

Report No. 2—Daily Power Cost Record

By LYNN L. ARMANTROUT

WE ARE interested in greater power efficiency and improvement of power-production methods only in so far as they affect the ultimate cost of paper making. Recommendations for improvements in power or production efficiency are generally considered in terms of their assurance that the change will effect a reduction in power cost per ton of paper, in favorable proportion to the cost of the proposed improvement.

Fortunately for the power plant men, it is now realized that anything which tends to make better and healthier working conditions for them, pays big dividends in money to the stockholders of the mill. The plant engineer, however, cannot rely on humanitarian impulses to secure approval of his requisitions for better power equipment. Any request of his that calls for an expenditure of any considerable sum of money, must be accompanied with a detailed array of facts and figures to justify the investment in terms of dollars and cents. For this reason, if for no other, the engineer's department should have a close daily report and check on his power cost.

Many facts given in engineering terms to indicate a large waste of power seem vague and unconvincing, but when revised into terms of financial loss per ton of paper, deeply impress the management with the importance of the matter, and often effect a speedy approval of the engineer's proposal for remedying the trouble.

Power cost per ton of paper represents at least one-half of the conversion charges in the average mill and in a few it may be even more. By keeping a close daily check and record of the power production features of paper making, and using the information obtained from this data for stopping wasteful power-using practices in the mill as well as for increasing power-generating efficiency, the power cost in one large mill was reduced to nearly one-third of the conversion costs.

Correct Reports Aid Co-operation

Such economies in cost reduction are the result of close co-operation between the production and engineering departments and can not be accomplished by the engineering department alone. By correct power cost reports the production department can be impressed with the importance of power cost in relation to total conversion costs of paper making, and once they realize the importance of keeping the beater room electric load down and reducing to a minimum the steam used in live steam consuming units, a decided change will be noted in power costs per ton of paper.

The engineer's cost record must be made to accurately balance with the main cost accounting system which will always be kept independently by the cost accountant in the general office. In order to do this, the engineering department must have a detailed account of every item used by, or charged to, its department, and should see that no charge is made to power by any other department unless such a charge is rightfully due it.

Practically all plants now have a material charge system whereby any material taken out of the store room is signed for by the person getting such material. The department for which this material is to be used is also marked on the slip and retained by the storekeeper who turns them in to the auditing or accounting department daily.

Time cards are also made out by all maintenance

or repair workmen, with a notation giving the amount of time spent in each department, during the day. These time cards are sent in to the accounting division, and with the material slips from the storekeeper, form a basis for the department cost charge which goes to make up the manufacturing cost account of the mill.

In order that the engineer's report may be correct, he must have access to all material and labor report cards which have any charge on them to his department. In making the record shown here, all material and labor time cards went through the engineering office before reaching the accountant, and all articles or time charged to power on them were noted for the power plant cost record.

INDIVIDUAL BOILER RECORD—Boiler No. 1

	EFFICIENCY											COST					
													MATERIAL				
Date	Boiler H. P. Developed	Blow-Down and Pop Valve Losses	Tons Coal Used	Pounds Coal Per B.H.P.	Pounds Water Evap. Per Pound Coal	B.T.U. in Coal as Rec'd.	Aver. Feed Water Temp.	Boiler and Grate Eff.	Aver. Stack Temp.	Pounds Coal Used Per Sq. Ft. Grate Per Hour	Boiler Hours Serve Since Clean 576 Hour	Labor Cost	Furnace Repair	Valves and Meters	Stoker and Conveyor	Tube Cleaner and Misc.	Total Material Cost
Monday	9716	777	18.9	3.9	8.7	13000	208	65%	420	31	528	$1.20	....	$ .70	$2.35	....	$3.05
Tuesday	10030	802	21.	4.2	8.2	13000	210	61%	415	33	552	$1.70	....	$1.10	$3.10	....	$4.20
Wednesday	9108	728	19.6	4.3	8	12500	209	62%	425	33	576	$1.00	....	$ .30	$ .75	....	$1.05
Thursday		Down for Cleaning.									....	$19.70	$36.80	$4.46	....	$1.49	$42.75
Friday											....	$11.13	$8.90	$1.80	....	....	$10.70
Saturday	9840	787	17.7	3.6	9.5	13000	210	71%	408	26	18	$ .95	....	....	$ .50	....	$ .50
Sunday	5402	432	10.	3.9	8.7	13000	200	65%	460	23	42	$ .75	....	$ .30	$ .85	....	$1.15
WEEKLY TOTAL	44096	3526	87.2	Aver 3.9	Aver. 8.7	Aver. 12900	Aver. 207	Aver. 65%	Aver. 425	Aver. 29	....	$36.43	$45.70	$8.66	$7.55	$1.49	$63.40

It often occurred that electricians and millwrights did work on motors or transmission machinery, charging such labor and material to the power plant when it was properly chargeable to other production departments. Often such charges would have been carried on the yearly power costs by the accounting department, had they not been corrected by the engineer who was especially interested in keeping his costs down as low as possible.

The Daily Cost Record

In the daily cost record kept by the engineer, new installation or new construction should be separate from the operating power costs. Only costs relating to maintenance of existing equipment which has been worn out in operating the plant, together with operating labor, should be recorded on the cost record as charged to paper making.

In addition to the daily labor, coal, and material costs, several other items must be considered as operating expenses. They are: Interest on the power plant investment, depreciation, insurance, taxes, and overhead salaries. All of which are figured and carried in a lump sum under the one heading of "Fixed Charges." As a general rule, the engineer will not have the necessary information available for figuring this item, and should learn the proper amount from the cost accounting department so he can add it in with the daily operating costs.

Items included under the heading shown here as "Miscellaneous" are: Coal unloading, including crane cost, stoker engines, damper regulators, forced draft fans, and other general units serving the plant as a whole which are difficult to charge on an individual boiler or engine basis, inasmuch as they must be operated regardless of the number of boilers in service or the amount of power being generated.

Other items shown under operating labor and material cost, and maintenance labor and material costs, are given in such manner that they allow a ready check on any item showing variations of a nature calling for investigation to determine cause of such a change in costs.

The coal cost shown is that used by entire mill and is, of course, more than that used by the main mill in paper making. The total power cost shown corresponds with the coal cost as given, and must have the cost of power used as live steam and electricity by the box, coating, and miscellaneous divisions (not directly related to paper making), subtracted from it, before the power cost of main mill can be known. The power cost of main mill is the item which determines the cost of power per ton of paper.

The cost per boiler horsepower is determined from the total power cost divided by the total boiler H.P. developed. With expensive coal as used at this mill, the cost of 1.5c is a fair average, but will vary with the boiler efficiency and maintenance charges as shown.

Monday's cost of 1.5c per B.H.P. corresponds to 43.5c "per thousand pounds of water evaporated," a term used as a cost basis in many plants. To con-

vert cost per B.H.P. into terms of "cost of evaporating per thousand pounds of water," multiply the cost per B.H.P. by 29.

Knowing (from Report No. 1, described in October issue) the amount of power consumed by departments not making paper and also knowing the cost per B.H.P., the cost of power for box, coating, and miscellaneous divisions is easily figured. This sum subtracted from the total power cost gives us the cost for main mill.

There will be a daily difference between the engineer's and cost accountant's charge for power used by the departments not engaged in paper making. The cost accountant will base his charge on a predetermined rate per B.H.P. that will be the same every day, regardless of the actual cost. The engineer will charge off the sum from the main mill at actual cost per B.H.P., but if the cost accountant's uniform rate is correct, both records will closely balance over a period of a month or year.

The weekly totals are figured and these totals added at the end of each month, so they can be checked with the monthly report of the accounting department in the general office. By so doing, the engineer's records will always stand approved and will thus be accepted by the management when presented by him in support of claims for savings made, or savings to be effected by the installation of new equipment.

DAILY POWER COST RECORD
Report No. 2

	OPERATING COST						COAL	REPLACEMENT—MAINTENANCE COST												
	LABOR		MATERIAL					LABOR	MATERIAL											
	No. of Men 24 Hrs.	Labor Cost	Oil	Waste	Boiler Comp.	Misc. Items Crane Etc.		No. of Men	Labor Cost	Boiler Furnace Repairs	Boiler Tubes and Baffles	Valves Packing Meter Parts	Elec. Repairs such as Brushes Fuses, Etc.	Tube Clrs. Parts	Misc. Items. Stoker, Engine, Damper, Reg., Gauge Glass, Etc.	Fixed Chges. Overhead	Total Power Cost	Cost Per B. H. P.	Power Cost Main Mill	Power Cost Box Coating and Misc. Div.
Mon.	22	$117.20	$ 29.40	$ .50	$12.45	$ 16.00	$ 931.12	5	$ 31.17	$ 16.00	$ 21.00	$ 3.70	$ 8.85	$ 3.70	$ 33.94	$ 86.66	$1311.69	1.5c	$1226.19	$ 85.50
Tues.	17	85.10	25.70	.50	8.05	20.00	506.76	5	31.17	31.00	7.00	4.50	8.17	....	14.25	86.66	818.86	1.6c	728 74	90.12
Wed.	16	84.25	24.35	.50	7.60	10.00	483.07	6	34.23	23.50	.....	5.40	1.38	....	.....	86.66	760.92	1.6c	655.56	105.36
Thur.	18	89.10	26.00	1.00	9.10	18.00	509.33	7	41.20	30.80	.....	7.60	4.30	....	1.49	86.66	824.57	1.5c	739.99	84.58
Fri.	19	95.34	23.00	.50	9.60	12.00	522.72	4	23.75	11.20	.....	3.45	5.09	....	.....	86.66	793.30	1.4c	729.23	64.07
Sat.	21	112.70	30.10	1.00	14.00	21.00	782.28	6	36.70	28.00	20.75	6.80	10.25	5.00	26.45	86.66	1181.69	1.4c	1136.80	44.89
Sun.	5	26.70	4.00	....	2.35	6.00	247.20	2	10.50	.....	48.75	6.75	4.24	....	.....	86.66	394.40	2.0c	370.23	24.18
Wk.Total		$610.39	$162.55	$4.00	$63.15	$103.00	$3982.48		$208.72	$140.50	.....	$38.20	$42.26	$ 8.70	$ 76.13	$606.62	$6085.43	Av. 1.58c	$5586.74	$498.70

The cost data given in this table is based on report No. 1— "Power Distribution and Efficiency" as published in the October issue.

The Individual Boiler Report

When a company organizes its general offices, especial attention is given to departments that are concerned with matters vital to the success of the business. These departments within themselves are required to keep a record of transactions which are in turn combined with other departmental records, and form a periodical analysis of the company's affairs for the guidance of the management. Such a general summary report is of little value unless detailed facts are available to account for figures shown in this summary. If an executive is to locate a trouble shown in his summary report, and in order to remedy the defect, he must have in detail, all facts or figures from the source to result which are related in any way to the trouble.

So it is with the engineer's records. In order for a record of total power cost and efficiency data to be of vital assistance to him, the information must be supported or verified by a report on the performance of all main units contributing to the result given.

It often occurs that a large amount of time and effort is spent in keeping a check on power production figures that eventually show a great inefficiency in the power plant. But when endeavoring to follow up the matter to form a definite opinion regarding the cause of such excessive power costs, it is found that the engineer's records do not contain information on facts contributing to the final report in sufficient detail to enable him to definitely locate the offending unit.

The importance of having records on units within the power plant itself cannot be overestimated, and for that reason the individual boiler record is given here as a suggestion of a means of obtaining the final and vital facts regarding each boiler, whose efficiency of operation depends on the amount of skill and care taken by its operator. Probably no power unit is as constantly dependent on the experience and conscientious interest of its tender, for cost and safety of operation, as the boiler.

Then, too, the largest controllable part of the power cost is coal, and its variations in amount are con-

trolled in a comparatively few units. For this reason all possible data that can practicably be kept on boilers should be recorded, and for each unit individually. In this manner, when the total power production costs are too high, a means is available for segregating the trouble and prescribing a remedy for such defective units as are found.

All the items worthy of consideration in compiling the total boiler efficiency as given in report No. 1 (October issue), and also items pertaining to boiler cost as shown in record No. 2, should be supported by parallel data on each boiler. There will, of course, be items in report No. 1 relating to steam distribution, and such headings in record No. 2 regarding the general plant charges which need not be figured for each boiler, as they do not have any purpose in this record. Only items likely to vary in a way that could account for a variation in total values as shown in power efficiency or cost records No. 1 and No. 2, need be put on this report.

The writer has found that a very good way to arrange this individual boiler record, is to use a large ledger and count off at least 12 pages for each boiler. Each page large enough to allow a line a day, with one line each, for weekly and monthly totals. This will allow a page each month per boiler, for one year. Then keep the two pages facing each other with one side for efficiency and one page side for cost. Using two pages as one this way, gives plenty of room for neatness and handy reference.

The value of this report depends primarily on a well balanced and accurate metering system for the boiler efficiency features, and on the material and time cards bearing a true account regarding which boiler the material and time was used on. This latter information may at first thought, seem to suggest a difficulty in getting the workman to mark the cards properly, but has not proven so in practice.

Having considered the calculation involved in records, Numbers 1 and 2, as previously given, all but one item in the individual boiler report will be clear, and explanation of their importance to the final report is unnecessary.

There is given in the boiler record, one item not given in the report of entire boiler unit. This item of "boiler-hours service since last cleaning," is seemingly trivial but is in fact of the utmost importance, and also a feature often overlooked.

Every plant has its favorite boiler which "steams" easier, and when most of boilers are idle over Sundays or during slack business, this favorite boiler is most always on the line. This, therefore, means that the one boiler may have many more boiler-hours service than the others, and in plants where boilers are cleaned in rotation on a time period of weeks, without an accurate check of boiler-hours in service it is readily seen that some boilers get much more attention per ton of coal burned, than others.

An example of a check is shown with a ring around the figure 576. In this plant boilers were cleaned monthly, a period of 576 hours service, and when the daily totals of service hours amount to 57[illegible] on any boiler it was marked for cleaning and the boiler room foreman notified if necessary.

Some plants prefer to work the same plan only set a maximum number of B.H.P. delivered per boiler and mark this sum for boiler cleaning. Their theory is that the proper measure for boiler service time is in actual work done instead of hours in service, because some boilers which steam easier will take more than their share of the load from the other boilers, and as they evaporate more water a greater amount of scale will be formed and hence a need for earlier cleaning than the balance of boilers. While this is true, the boiler-hours service seems the more reliable in practice and is here given. The important thing to be considered is that the cleaning time for each boiler should be set in accordance with the boiler work done, whether in hours service or water evaporated.

Just as some boilers with similar equipment will operate more efficiently than others, there will be units more difficult to operate and which will cost much more to maintain. It might be assumed that a boiler delivering the most steam will cost the most to maintain, but an accurate individual boiler record shows that costs in practice are often out of proportion to the work done for some boilers.

Faulty arches, defective baffles, or dirty tubes in any boiler will cause it to cost more for maintenance then others apparently operating under the same conditions. Any one boiler's trouble will be quickly noticed either in the daily efficiency reports or cost for repairs out of the ordinary, when such records are kept.

In modern plants new types of boiler equipment are being constantly tried out and it is usually advisable to make the change on one boiler for a test before adapting the entire installation. When such tests are conducted, it is not only necessary to have a record of the boiler performance taken with the new installation, but there should be a record covering the boiler cost and efficiency under the previous conditions, in order to arrive at a reliable conclusion as to the merits of the new equipment.

Power plants that keep a daily total power cost record and a corresponding individual boiler record, are always able to detect any considerable plant inefficiency at its start, and to recommend means of remedying the defect. Such recommendations from reliable reports are reasonably sure of being accepted by the management. When the change is made an accurate record of savings made, can serve to approve the engineer's judgment, and act as a guide for future recommendations.

Calculation of the Air-Dry Weight of Wood Pulp

By DR. TH. BENTZEN
Chief Chemist, Whiting-Plover Paper Co., Stevens Point, Wis.

As chemical wood pulp is sold on an air-dry basis equal to 90 per cent bone-dry pulp plus 10 per cent water, it is necessary for the paper maker to be able to calculate the air-dry weight, knowing the wet weight of the shipped pulp, not only to learn the amount of weight to be paid for, but also to be able to know the air-dry weight of the pulp to be furnished.

To obtain the necessary factors of weight for this calculation, I am using a method which in its details is different from what was described in books and magazines, combining facility in performance with practically utmost exactness of the calculated result. I shall explain this method, demonstrating an example of calculation taken from actual figures.

The whole equipment necessary consists of a balance with a capacity of about one kilo and a sensitiveness of 0.1 gram, with a set of weights from 0.1 to 500 grams. Besides this, there is needed an aluminum can with good fitting cover, about 4½ inches high by 5½ inches in diameter, and, of course, the tool to cut the samples of pulp in shape of discs of about 4 inches in diameter.

Out of a shipment was taken an average sample, consisting of 23 round cuts or discs of the pulp, about 4 inches in diameter. These samples were collected in the covered aluminum can, the lid only lifted for every single disc to be put in, and then immediately closed again. As soon as the sample was completed, the covered can was brought to the laboratory without delay and immediately placed on the balance.

Weight of can plus moist samples was.....450 gr.
Weight of can.....250 gr.

Net weight of pulp.....200 gr.

To obtain the bone-dry weight of this sample, it must be perfectly dried in an oven. In his book, "The Paper Mill Chemist," on pages 136 and 217, Stevens warns against leaving the pulp in the hot oven after the moisture has been driven off, because the wood pulp at a temperature of 100° C. or over, will increase in weight, due to a gradual oxidation.

As to this, I have had the experience that an impractically constructed drying oven is very capable of causing this trouble, permitting the air from the outside to pass continually over the pulp, thus continually supplying it with an increase of oxygen, causing oxidation of a certain part of the Cellulose (the Oxycellulose) and at the same time an increase of weight. I am now using a Frea's Electric Oven, manufactured by the Thermo Electric Instrument Co., and this oven is in every direction working satisfactorily, without any increase of weight at a temperature of 110° C., which is more than necessary.

The 23 pulp discs are placed upon the five shelves of the oven, in alternation 5-4-5-4-5 discs upon each shelf, to admit the hot air to circulate, and in a way that they are not even partly covering each other. The oven is closed, only keeping the two ventilators permanently open, to permit the moist air to escape. The temperature is, with the help of the adjustable thermostat (controlled by the thermometer on top of the oven), regulated to a constant temperature of not under 100° C. and not over 105° C. (to be on the safe side).

During the test I am referring to, the temperature was adjusted to a constant heat of 103° C. After three hours the oven was opened and with help of a crucible tong (double bent), the 23 discs were removed as fast as possible into the can, immediately covered with the lid and weighed.

Weight of can, plus bone-dry pulp.....385 gr.
Weight of can .....250 gr.

Weight of sample.....135 gr.

The pulp discs were again placed in the oven and again left for three hours at the same temperature (103° C.) as before. Then they were removed into the can and weighed, with the result that the weight was unchanged, being the same—135 gr.

Once more the pulp discs were brought back into the oven to stay over night at the same temperature (103° C.) and the next day the weight was still unchanged—135 gr., which therefore must be the bone-dry weight.

In this way it was proven:

1—That the pulp was perfectly dry after only 3 hours.

2—That the weight was the same also after 6 hours, and

3—That the weight was unchanged also after 24 hours' heating.

That shows that 3 hours was sufficient to obtain a reliable bone-dry weight, and that a prolonged heating does not cause an increase of weight, if the oven is reliable.

As the standard basis for calculation is—

90 bone dry = 100 air dry,

we only need to add one-ninth part to the amount of the bone-dry weight to obtain the value of the air-dry weight.

The bone-dry weight of oven sample was....135 gr.
Plus one-ninth ..... 15 gr.

Therefore, air-dry weight.....150 gr.

The further calculation will then be

$$\frac{150 \times 100}{200} = 75$$

because

$$\frac{\text{Air-dry weight} \times 100}{\text{Wet weight}} = \text{Air-dry weight per 100 Wet weight}$$

Wet weight, and this will show us that we, for every 100 lbs. wet-weight of the shipped pulp, shall have to pay the price of 75 lbs. air-dry pulp.

Pointers for the Engineer

By W. F. SCHAPHORST, M.E.

How Long Will Oil Supply Last?

ENGINEERS are now seriously looking into the future and are estimating the probable demand for gasoline and fuel oil. The American Petroleum Institute Committee on Conservation have made the following future estimates of the population of the United States:

	Population.
1930	122,397,000
1940	136,318,000
1950	148,678,000

In 1924 the number of automotive engines, including automobiles, motorcycles, airplanes, etc., was 13,028,000; in 1930 it is estimated that the number will be 31,018,000; in 1940, 39,755,000, and in 1950, 44,990,000.

Thus it is figured that the number of engines will be more than tripled, yet the committee is of the opinion that with the improvements in refining, which are being rapidly made, and with the improvements that may be made in the economy of automotive engines, no more than 50,000,000 barrels of petroleum will be needed in 1950 instead of the 643,966,000 used in 1924.

Regarding the possibility of improving automotive engines, C. F. Kettering, president of the General Motors Research Corp., is credited with the following statement:

"We believe that it is possible to make automobiles go twice as far per gallon of gasoline used. The present internal combustion engine and automobile only transform an average of 5 per cent of the energy originally in the gasoline into useful work. It is possible at present to transform 10 per cent of this energy into useful work, and this will be common practice in the future."

A similar statement was made by H. L. Horning, President of the Society of Automotive Engineers, addressing the American Petroleum Institute in December, 1923.

As for the number of years our oil supply will continue before exhaustion, that of course is problematical. At the present time, the supply is more than ample and it is assumed that there are many undiscovered oil fields in existence in the United States which will sooner or later be found. At any rate, we are assured that we have nothing to worry about so far as oil supply is concerned for 25 more years. When 1950 arrives, it is quite probable that water power from rivers, water falls and tides, wind power, sun power, etc., will be more economically utilized than at the present time.

Before many years, the problem of supreme importance to the human race will be that of heat and energy. Until we can be reasonably certain that there will always be a generous supply for everybody, fuels of all kinds should be conserved.

Automatic Regulation Pays

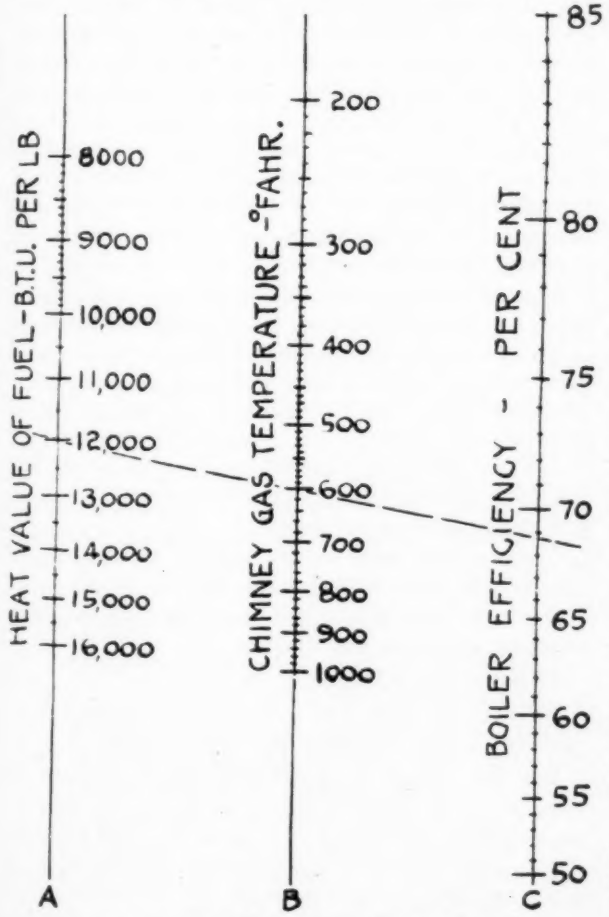
DURING the past ten years, power plants have become almost automatic. I stepped into a comparatively small plant not long ago and there was nobody in the engineroom; the chief was not at his desk in his office; and there was nobody in the boilerroom. I then went out into the back yard and there was the entire force, including the chief, looking at and commenting upon the beauties of one of the most gorgeous rainbows I have ever seen. All of which is as it should be. When there is something worth seeing, we should all have an opportunity to see it. One cannot do one's best by eternally and monotonously watching an engine or turbine or shoveling coal by hand. In this plant, while the operators were out, the electrical end was "regulating itself"; the engine governor was taking care of the engine speed; the stokers were automatically firing the boilers; and boiler feed regulators were taking care of the feed water. Temporarily, everything was O.K. and the force had nothing to worry about while admiring the rainbow.

Not only does automatic regulation make life more livable for the operators—it is a *Good Invest-*

ment. Take boiler feed regulators alone, for example. An actual instance has just been brought to my attention where a concern saved nearly $10,000 per year by installing automatic boiler feed regulators and reducing the number of men needed in the boiler room. And it is said that the total investment was much less than $10,000—so much less that the investment paid over 200 per cent interest the first year. They have 24 boilers of over 500 H.P. each. Besides, this $10,000 saving does NOT include the coal saving that accompanied the better regulation that resulted after automatics were put in. Yes, automatic regulation generally pays.

Efficiency of Coal Fired Boilers

PAPER mill engineers will find this chart useful for roughly determining the efficiency of steam fired boilers. It is based on carefully made scientific tests, and although it is not claimed to be absolutely



accurate, it is certainly better than no chart or no method at all.

To apply the chart, simply run a straight line through the heat value of the fuel column A, and the chimney gas temperature in degrees F., column B, and the efficiency is immediately found at the point where the straight line cuts column C.

The dotted line drawn across this chart, for example, shows that if the heat value of the coal is 12,000 B.T.U., and the chimney gas temperature 600 deg. F., the boiler efficiency is about 68.8 per cent.

The rule on which the chart is based is as follows:

"Multiply the temperature of the exit gases in degrees Fahr. by 625 and divide by the heat value in B.T.U. per pound. Then subtract from 100. The result is the approximate boiler efficiency in per cent."

Applying this rule to the test results of the new Hell Gate Power plant in New York City, I get 91.7 per cent. The actual overall efficiency as computed by the engineers in charge of those tests was 92.7 per cent. In other words, this rule is only one per cent off even when applied to this unusual example.

The Rotary Engine

IT IS said that the patent office has granted over 3,000 patents on rotary engines.

My advice to paper mill engineers is to waste no valuable time thinking about such engines. I maintain that a really successful one will never be built. It is true that they can be made to "run," but not efficiently.

For several years I have been in touch with an acquaintance who has "invented" one. I have told him that I am sure his engine will never be able to compete with the small turbine or with the reciprocating engine, but he has plodded along with it just the same. A friend recently sent me a clipping from his home town newspaper regarding this engine. The following extracts I am certain will be read with absorbing interest. I have no hesitancy in predicting that the results of the tests will not measure up with common practice of today via other types of engines. Yet, personally, I shall look forward to the results with delight as I have never seen published data on actual carefully made tests on such engines. Here are the excerpts:

"If his machine is all he hopes it is, it will indeed create a revolution in power mechanics. Each successive machine has been improved by some little addition, until now he is willing to put one to a test. He plans next week to take one to Minneapolis for an efficiency test at the department of engineering of the University of Minnesota.

"He firmly believes that his engine, weighing 400 pounds and capable of generating 100 horse-power, can be operated with half the steam of the ordinary type of engine. With half the steam, just half the amount of coal would be needed, and the saving of fuel is the great purpose of his invention. There is also a saving in investment, for an engine of the type now in use, capable of giving this same power, would weigh 15 to 20 tons.

"The rotary engine, in principle, consists of a single piston operating in a circular groove, with

valves letting steam in and out at the proper moments. Because the piston keeps moving in one direction, instead of up and down as in the regular type engine, it is declared there is less friction."

50 Per Cent Belt Slip

I RECENTLY read the above very strong statement in an advertisement, which would lead one to believe that belts slip as much as 50 per cent. It said that where belt slip is 50 per cent, one-half of the fuel is wasted.

It is true that where belt slip is as high as 50 per cent, one-half of the fuel will be wasted, but I do not believe any belt can slip that much without running off the pulleys. The belt would have to be held in position by some means. As soon as belt slip reaches 10 per cent, it is ordinarily very difficult to keep it on the pulleys without the use of flanges or guides.

Fifty per cent belt slip means that one-half of the power would be converted into friction. Friction creates heat. The belt would be naturally very hot—possibly so hot that it would burn and be ruined.

Casein in Papermaking

THE following account of the applications of casein in the paper industry is taken from a report issued last September by the Monthly Resources Intelligence Service, Department of the Interior, Ottawa, Canada.

The report is prefaced with a brief account of the usual processes of precipitating casein from skimmed milk. These include the natural sour or lactic acid method in which the necessary acidification is obtained by allowing the milk to stand until the amount of lactic acid produced is almost sufficient to separate the curd from the whey; the acidification method with either hydrochloric or sulphuric acid, and the rennet method. The uses of casein in the paper industry are then described.

Colored papers, coated papers, cardboard boxes, cartridge cases, transfer papers, paper containers and wrapping paper can be made waterproof by impregnation with casein solution and subsequent exposure to formaldehyde vapor. Vessels of paper pulp or millboard can be sterilized and rendered impervious to moisture, milk, oils and other liquids in the same way; paper bags for storing clothes can be made waterproof and resistant to moths, and wallpaper can be made washable and antiseptic. By treatment with a casein solution to which has been added finely divided magnesia or lime, drawing paper is rendered erasable. Paper can be readily sized or enameled with casein, which acts both as a binder for the enameling substances and as a mordant for the colors. Casein associated with clays, alum and lime has proved the mixture par excellence for the production of especially high-grade papers for halftone illustrations.

According to Chemicals (formerly Chemical Age, N. Y., July 6, 1925, p. 8), Hydroloid, Inc., of New York, has recently marketed a paper (based on a German patent involving the use of casein) of excellent resistance to tearing that is proof against water, oil rust and grease, and of value not only for out-of-door work, but also for making a wide variety of products.

The manufacturers of paper, coated paper in particular, absorb the bulk of the casein at present used in the arts in both Canada and the United States. In the United States, the paper, printing, lithographing, electrotyping, and publishing industries together consume about 75 per cent of all domestic casein marketed there for industrial purposes. In Canada, coated paper is produced by five concerns. The total output of coated paper in Canada was 7,940 tons in 1922 and 10,922 tons in 1923; the production in 1924 is estimated to be about the same as in 1923. Most of the casein used for this purpose is imported from Argentina. According to some authorities the best casein for coating paper is that obtained by precipitating sweet skimmed milk with the minimum quantity of lead and iron-free sulphuric acid at 60 to 70 degrees C. and drying it out of contact with iron or zinc.

Though the application of casein to the sizing of paper has a very favorable influence on the firmness of the paper and the amount of size consumed, very little has thus far been used by Canadian paper companies to replace some of the imported rosin. Paper sized in casein solution can be damped by immersion in hot or cold water and will receive and retain the ink after drying; this property is especially desirable for important documents.

A few of the more recent patents relating to the use of casein for waterproofing and sizing are:

Dunham. U. S. P. 897,885, 1908; borax plus casein as sizing for paper and textiles.

Thorton. E. P. 175,034, 1920; sizing.

Wright. U. S. P. 1,474,502-3, 1923; coating composition to make paper impervious to grease.

Regnier. U. S. P. 1,501,493, 1924; casein size.

Lutz. E. P. 156,514, 1921; sizing and impregnating of paper, cardboard, woven fabrics and the like.

Schwalbe. G. P. 366,322, 1918; manufacture of dense, strong paper.

Barret. Aust. P. 72,603, 1916; waterproof covering.

Exportingeniure fur Papier. E. P. 169,676, 1921; impregnating paper, cardboard, etc., with animal size, casein, etc.

Koplin. U. S. P. 1,501,493, 1924; process for impregnating paper.

Cost and Factory Accounting—Part XIV

By H. M. GRASSELT

THE monthly summaries exhibit in a concise and comprehensive manner all totals of costs and production, the details having been collected through the various daily reports that cover the entire sequence of operations. To which extent the manufacturer should use these summaries, depends on his system of cost keeping and tying up of commercial books with his manufacturing accounts.

The summaries that are necessary to exercise an effective control of cost and production operations and results, and procure accurate totals for labor and material expenses, may be classified as follows:

1—Summary of Beater Orders.
2—Summary of Daily Paper Machine Reports.
3—Summary of Washer Reports.
4—Summary of Cost of Boiled Rags.
5—Summary of Cost of Half Stuff.
6—Summary of Cost of Finished Paper.
7—Summary of Daily Reports of Broke Recovered.

Summary of Beater Orders

A specimen of that summary was shown and explained under Figure 9 in the October, 1924, issue. It constitutes a recapitulation of all details collected through Form No. 7, the Beater Report (September issue, 1924).

Summary of Machining and Drying

This summary serves for the recapitulation of all data collected through the Daily Paper Machine Report and Form 6d—Cost of Production Order (December issue, 1924). It was illustrated and explained in the March, 1925, issue as Figure 13.

Summary of Washer Reports

In this summary, all details from the Daily Washer Report (Figure 7, September, 1924, issue) are to be entered, so that the last column shows the total cost of Half Stuff in the drainers.

Summary of Cost of Boiled Rags

The accompanying Figure 22 depicts a summary for the recapitulation of costs of rag room activities, as reported on the Bleach Card (Fig. 2, June, 1924).

Summary Cost of Finished Paper

The details for this summary—Figure 23—are derived from Form 6e (August, 1925, issue), the Production Order Cost of Finished Paper.

Summary Daily Reports of Broke Recovered

For a better accounting for broke from all departments, this summary (Figure 24) is indispensable. It contains columns for the respective quantities of broke derived from the paper machines and subsequent finishing operations. Mills that do not account for broke from the individual finishing operations, such as calendering, cutting, trimming, etc., should use a simple form for the daily report of broke from the entire finishing room. The employee who has to carry the accumulated broke to the bins or pulper department, weighs the loads, enters their net weight and submits the reports every day to the cost department.

SUMMARY—COST OF BOILED RAGS
Month of.....192...

Date	Grade	Bleach No.	Baled Rags			Sortings				Waste			Net Rags		Rag Dept.		Pro. Supplies		Total
			Wt.	Unit Price	Cost	Used		Recovered		Pounds			Wt.	Cost	Hrs.	Cost	Wt.	Cost	Cost
						Wt.	Value	Wt.	Value	Lost	Rec.	Value							

Figure 22—Heading

To account for the broke according to the respective finishing operations and production orders, would entail a good deal of work and expense, and at that, the accuracy of the obtained results would be rather problematical. Hence, most mills calculate the finishing room broke as a whole. (Aug., 1925, issue.)

A periodical statement—Reconciliation of Broke—shows whether broke has been reported accurately. Of course, there will always be a discrepancy between broke reported through the daily reports and calculated broke, but the difference between the two figures must be within very reasonable limits.

The statement referred to is made up as follows:

Rough Paper Inventory of June 30, 1925...	50.000
Reported Machine Production, July-Aug.-Sept.	400.000
Total	450.000
Rough Paper Inventory of Sept. 30, 1925...	55.000
Rough Paper Finished July, Aug., Sept.	395.000
Finished Paper Inventory, Sept. 30, 1925...	300.000
Sales—July, Aug., Sept.	350.000
Total	650.000
Finished Paper Inventory of June 30, 1925..	290.000
Finished Paper Production	360.000

Rough Paper Finished	395.000
Finished Paper Production	360.000
Difference—Calculated Finishing Broke	35.000

	July	August	Sept.	Total
Total Broke Reported	17.000	15.000	13.000	45.000
Machine Broke Reported	5.000	4.000	4.000	13.000
Fin. Broke per Reports	12.000	11.000	9.000	32.000

Calculated Finishing Broke	35.000
Finishing Broke per Broke Reports	32.000
Apparent Discrepancy Between Broke Reported and Broke Calculated from Reported Sales, Production and Inventories	3.000

Through proper attention and a little effort, these discrepancies between calculated and actually reported broke can be reduced to a minimum.

The summaries stated in the preceding chapter are self-explanatory, and for that reason, no effort has been made to describe in detail the entries from the daily cost reports into these forms. The daily reports that furnish the various details are referred to and the reader will, therefore, experience very little difficulty in following the procedure in the logical sequence.

Labor Distribution

It has been stated in one of the initial chapters of this series that the plant for effective cost and labor control has been departmentalized and each department or producing unit given a definite symbol that is to be used in reporting labor expenses, etc.

The controlling symbol for the rag room, for instance, may be "1000." The symbol is extended and used in the following manner:

1001—Labor.
1001-A—Foreman.
1001-B—Cutter Men.
1001-C—Male Helpers.
1001-D—Female Helpers.
1002—Supplies.
1005-A—Repairs—Labor.
1005-B—Repairs—Materials.

The following department—Bleach Boilers—have the controlling system "1100" and so forth throughout the entire mill.

The foremen of the individual departments make out a daily Labor Distribution Sheet,* in which they state the employees' clock number and the symbol under which the work was carried out. First of all, these daily labor distribution sheets are used daily as a check against the workman's daily time card. At the end of a cost period, the daily labor distribution sheets are computed according to symbols and the total hours and expenses incurred during that period, as well as the total number of employees, recapitulated in the Pay Roll Analysis. Naturally, the total hours shown in the Pay Roll Analysis for that cost period, have to agree with the hours exhibited in the various summaries that make up the

FINISHED PAPER

Summary of Paper Orders Month of.....1925

Date	Rough Paper		Calenders		Cutters		Trimmers		Gen. Finish		Total Charge to Finish Paper		Broke Credit		Total Finished Paper	
	Weight	Cost	Hours	Cost	Hours	Cost	Hours	Cost	Pounds	Cost			Pounds	Cost	Pounds	Cost

Figure 23—Heading

periodical statements for the specific producing department or units.

To render possible an effective control of these activities, mills have to adopt definite labor standards that govern the number of employees that are required to efficiently operate the respective pro-

SUMMARY OF DAILY REPORTS OF BROKE
Recovered
Month of.....192...

Machine Broke			Finishing Broke			Grand Total Broke	Amount	
No. 1	No. 2	Total			Total			

Figure 24—Heading

ducing units or departments under normal conditions. Assuming that the normal operation of a paper machine is 500 hours a month and that the labor necessary to run the machine under such condition is $2,000.00. If this machine, however, operates only 250 hours in any particular month, the labor expenses incurred should be about $1,000.00, or about 50 per cent of the normal. The very same rules govern other departments—labor hours and expenses as exhibited in the Pay Roll Analysis must be in proportion to operating and production results.

Maintenance and Repairs

Expenses for maintenance and repairs are distributed over the entire plant and allocated to the re-

* See "Wages, Timekeeping and Payroll," The Paper Industry, August, 1923.

spective units or departments in accordance to the estimated expense required to keep them in running condition individually. These expenses are incorporated in the departmental rates for the particular producing departments or units. A definite time-keeping system, which takes care of the many specific jobs, or a method of treating "job orders," should be introduced in the repair department in order to secure accurate basic figures for the distribution and allocation of repair and maintenance costs.

At the close of a cost period, repair shop labor, materials and expenses are summarized by job order numbers and symbols respectively to facilitate the entries into the equipment or plant ledger as well as accurate distribution and allocation of repair and maintenance costs. **

Steam and Power Plant

These departments are treated as independent units and cost records and summaries of their operations and expenses are, therefore, kept individually for the purpose of ensuring dependable totals for steam and power distribution and charges. A comprehensive description of steam and power costs, records, distribution, etc., was given in the third installment of this series (May, 1924).

Packing and Shipping

Packing and shipping expenses are usually covered by a fixed rate per 100 pounds of paper. There exists some difference of opinion as to the treatment of packing and shipping costs. The fact remains that packing and shipping is an item of expense and must be taken care of somewhere. Many mills prefer to charge it against gross profit than to include it in manufacturing cost.

It is advisable to introduce a method of controlling costs and activities of the casemakers. A daily report of cases made and a periodical statement of results and expenses will help greatly toward higher efficiency in casemaking and attendant lower costs.

Date.....192.... COST OF PRODUCTION ORDER No..... Machine No.....

Beater Order No..... Grade..... Color..... Size and Weight.....

Detailed Furnish Materials Used	%	Unit Cost	Cost Cwt. Paper	Total
Filler (Retention)				
Alum				
Starch				
Beater Sizing				
Color				
Gross Furnish Cost				
Machine Broke				
Shrinkage				
Net Furnish Cost per Cwt. Paper				
Beating				
Paper Machine				
Tub Sizing				
Soft or Air Driers				
Total				
Calenders				
Cutting				
Sorting				
Trimming				
Etc.				
Total				
Finishing Broke				
Manufacturing Cost:				

Profit and Loss Statement		
Item	Pounds	Value
Gross Sales		
Less ....% Discount		
Net Sales f.o.b. Mill		
Freight		
Net Sales f.o.b. Destination		
Manufacturing Cost		
Packing and Shipping		
General Overhead		
Cost per Cwt.		
Sales Adjustment		
Total Cost per Cwt.		
Pounds Sold.....		
Profit or Loss per Cwt.....		
Total Profit or Loss.....		

Figure 25

Cost of Production Order—Profit and Loss

Figure 25 illustrates a final statement of total manufacturing cost of a specific production order and also shows the profit or loss realized on that run. It may be noticed that the entries required to arrive at a final total cost are simply a recapitulation of totals

** See "The Small Paper Mill's Maintenance and Repair Department," The Paper Industry, October, 1923.

taken from the records of operation and cost details.

The added Profit and Loss Statement discloses to the manufacturer whether or not he made a profit on that particular production order. It is obvious that this statement represents an invaluable means for comparison of results with past performances and records.

In the profit and loss statement there is also included an item of "Sales Adjustments." A definitely fixed rate for bad debts, adjustments and allowances is set up and added to the cost of the paper. An amount of 15 cents per hundred pounds of paper should cover the item thoroughly.

Since bad debts, adjustments and allowances happen in every mill, it is absolutely necessary to reserve a fixed amount and include it, properly distributed, into the final cost per hundred pounds of paper.

Figure 25, the Cost of Production Order Statement, shows an itemized sequence of materials used, beating time, paper machine expenses as well as the cost of the various finishing operations. The cost department has all standard rates for the respective activities, etc., and must, therefore, compare the results with the predetermined standards. When necessary, corrective measures must be adopted at once.

In concluding this series, it must be repeated emphatically that computation of collected manufacturing costs is just the mechanical part of cost accounting. Only correct application of cost records and proper interpretation of results, as outlined through the various chapters of Cost and Factory Accounting, will lead to higher plant efficiency and larger profits.

Good scales are important items in a paper mill. A scale that can be easily read with the least handling and manipulation is of extreme importance. The books in the front office are kept on the records of the readings of the scales and if these are not correct there may be considerable trouble as well as expense. If mistakes are made in favor of the customer, this means a loss to the mill, and if the mistake is made in favor of the mill the customer gets sore and thinks you are trying to gouge him.

Wasted—Labor

The Old and the New. What a Difference!

By B. T. McBAIN

A—A FEW years ago, the one-roll news machine trimming 73 inches—speed 300 feet per minute—four men per shift—13 tons per day.

B—A few years later, the same machine—same amount of help—450 feet per minute—20 tons per day.

C—The next decade, the two-roll machine—two 73-inch rolls—speed 450 feet—5 or 6 men to tour—40 tons per day.

D—A few years later, the same machine speeded up to 600 feet—50 to 55 tons.

E—Five or six years ago, the 1,000-foot machine making two 73-inch rolls, but not efficiently, averaging, with 6 to 8 men per shift, and about 80 tons of 32-pound paper in 24 hours.

F—Today, the three-roll machine—three 73-inch rolls, 800 to 1,000 feet per minute—7 or 8 men to a shift—100 tons to 120 tons per 24 hours.

This is evolution in the paper industry. But with these changes have come also many other changes:

20 years ago, 6 to 7 men per ton
15 years ago, 5 to 6 men per ton
10 years ago, 4 to 5 men per ton
5 years ago, 3 to 4 men per ton

Today's latest, 1½ men per ton in our best newsprint mills. This includes wood preparing plant to shipping room. There is one such mill on the Pacific Coast and only one.

How can mills, still operating at 4 men per ton, expect to compete in the same market with mills calling for and employing only 1½ men per ton?

An old, one-roll machine, now making 20 tons with 4 men per ton as against the three-roll machine today making 100 tons with 1½ men per ton—a saving of 2½ men per ton, sufficient to pay for throwing away all the old equipment and installing new. With an average of $4.00 per day, a 200-ton mill with 4 men per ton, as against 1½ men per ton, is at a disadvantage of 500 men or $2,000 per day, or $1,000,000 per annum. Is that return enough on a 200-ton plant to build a new one from savings alone?

An old pump costing $500 uses 25 H. P. and pumps 300 gallons per minute. A new pump can be gotten for no greater cost, doing the same and more work, with 10 H. P. consumption—a saving of three-fifths of the power at an average cost of say $50.00 per horsepower year, or $750.00 saved in one year.

Can it be possible that no one sees and figures these losses? Look in the basement of most mills—savealls? None at all—the white water still being a part of the sewer—so badly needed in so many mills and so sadly unnoticed as a red ink producer in the monthly score.

The old at the new.

I have run out of words fit to print to express my views, but it takes all kinds of people to make even the Paper World.

Foreman Training in the Paper Industry

Part III—Division Material for Foremen's Conferences

By J. K. NOVINS

Author of "A Training Program for the Factory Foreman," "Foreman Training in Practice," "Manual of Practical Training for the Railroad Foreman," etc.

Effective Orders—How to Give Them!

IN ORDER to effectively give job orders, directions and suggestions to his men, the foreman must take into consideration all the principles of job analysis, instruction, safety and co-operation. When these elements have already been discussed, as shown in previous articles, the foreman is prepared to intelligently discuss this important phase of factory management.

To successfully conduct a session on this phase, the leader must impress the following points:

1. Consider specific orders, directions and suggestions in order.
2. To bring out the essential elements of a complete order.
3. To determine ways and means of giving proper orders, directions and suggestions.
4. To find causes for faulty orders, and to suggest preventive measures.
5. When to use orders, directions and suggestions.

This series is a manual on the subject of foreman training, and as such is replete with valuable suggestions for the installation of a foreman training course in the paper industry.

Part Three contains eight chapters, of which the two herewith are the last. Part Four, containing seven chapters, covers State Foremen Training Classes, giving facilities to be had in the different states and sections of the country. The first of this series will appear in the next issue.

The author of this series is available to answer any inquiries regarding any phase of foreman training on which the reader might wish to be enlightened.

Analyzing the Order

To show how these objectives were discussed, the writer will illustrate by presenting the outline of discussions on the subject at the conference of A. M. Collins Company foremen held in Philadelphia.

The leader began the session with a discussion of several incomplete orders, which were stated as follows:

1. A worker in a machine shop was told to cut bolts of a certain style and size, but was not told how many to cut. Before the foreman returned too many had been made.

2. A carpenter was told to put mortise sash lifts on windows. The foreman did not specify whether there were to be one or two to each window. He left in a hurry and the worker proceeded as was common practice in that type of residence work. It proved to be other than was wanted. The fault was largely the foreman's for not giving complete orders.

After considering these and other typical cases, the foremen decided that there were four essential elements, either expressed or understood, in an order. These four essential points were listed: 1—Who is to do the job; 2—What the job is; 3—Where the job is to be done; 4—When the job is to be done. Under other circumstances the foreman might have to take into consideration other factors, such as, 1—How quickly to do the job; 2—How to do the job; 3—Why to do the job.

The leader pointed out that foreman should in all cases check back when he receives an order that he believes to be wrong. In the case of written orders, the leader said they should be posted and, if possible, supplemented with oral directions and orders.

Next, the foremen discussed the relative merits of orders, directions and suggestions as demanded by occasions. To begin with, the foremen discussed the question, When to give a snappy order.

The giving of snappy orders, they decided, is made necessary at such times as follows:

1—In time of accident or other emergency; 2—To speed up action; 3—To prevent accidents; 4—To prevent mistakes; 5—To prevent waste; 6—In case of disobedience.

Directions and Suggestions

In certain cases, the foremen decided, it is necessary for the foreman to give directions instead of orders. Such is made necessary:

1—When information is needed; 2—To prevent waste of time, materials and equipment; 3—To assure proper quality; 4—To prevent accidents; 5—To prevent sickness.

The use of suggestions is made necessary:

1—With experienced man when order is not necessary; 2—To promote confidence in man to do the job; 3—To promote confidence on the part of the man in the foreman; 4—To promote thinking on the part of the man; 5—To promote initiative on the part of the man; 6—To promote job pride on the part of the man; 7—To promote plant pride on the part of the

man; 8—To promote better efforts on the part of the man.

The foremen then discussed the relative merits of written and spoken orders. The advantages of written orders were listed by the foremen as:

1—Protection to foreman and others as it serves as a record; 2—May minimize misunderstandings; 3—May serve as a reminder; 4—May be most convenient.

Advantages of spoken orders:

1—May save time; 2—May be most convenient; 3—May speed up work; 4—More personal.

Reverting to the question of orders and suggestions, of interest will be the discussion of these two terms at the conference of the Bemis Bros. Bag Company foremen. To quote from the conclusions reached by the leader of the conference:

"In comparison of orders and suggestions, it was determined that orders can be given to subordinates only when the giver understands perfectly the required results and methods of doing it and desires exact compliance therewith.

"Suggestions are orders given to superiors or equals but may be given to subordinates where expedient for specific reasons. They enable the foreman to use the ability of his men and get the advantage of their ideas. They tend to boost interest and morale and enable the foreman to make the men more able to accept responsibility. It was decided that under the following conditions an order would be better than a suggestion:

"1—When the order specified but one way; 2—Cases of emergency.

"Considerable discussion was had upon the subject as to whether a foreman had any responsibility covering the case where he gave a correct order to one of his men and the job was performed by the workman incorrectly. It was decided that in any case where a workman made a mistake, whether it was due to faulty orders of some kind or some other cause, the foreman had a partial responsibility. In the case where this cause was due to a misunderstanding of the order, it was decided that the best way to avoid complications of this kind was to backcheck the order. It was agreed that it was not necessary to backcheck all orders, so the following conditions were listed when and how an order should be backchecked:

When to Backcheck Order

"1—When you are certain that men understand; 2—When there is a possibility that order might be misunderstood; 3—New orders never performed before; 4—By supervising operation.

"Considerable discussion arose over the advisability of using written or verbal orders. It was agreed that in the case of a written order less mistakes were made, as it eliminated the possibility of misunderstanding, and therefore the necessity of very much backchecking. However, all orders cannot be written orders. The following conditions are a partial list of occasions when written orders should be used:

"1—Not a routine job; 2—When a mistake would be costly; 3—When the job is to be performed in the future; 4—When operations to be performed involve various departments; 5—When a number of operations are involved.

"Some consideration was given to the causes of faulty orders and the relative values of these causes were considered. It appeared from the discussion that some of these causes are much more to blame for faulty orders than are other causes. An incomplete list of these causes for faulty orders was made as follows:

"1—Incomplete; 2—Given too hastily; 3—Men didn't understand; 4—Men did not know how to do job; 5—Orders not given clearly or distinctly; 6—Men were inattentive; 7—'What is it' men."

Causes of Faulty Orders

At the Champion Coated Paper Company foremen's conference, Mr. R. W. Jenkins, conference leader, asked the foremen to list their remedies for faulty orders. The foremen drew up the following list, after some discussion:

1—Take time to consider; 2—Check all orders before execution; 3—Discuss the order; 4—Use written orders and play square; 5—Make orders complete; 6—Make orders clear; 7—Check for troubles; 8—Complete co-operation; 9—Man needs rest; 10—Change for jobs; 11—Training, experience; 12—Job analysis, knowledge of job; 13—Control self, lay off; 14—Improve equipment and material; 15—Give him responsibility; 16—Separation; 17—Offer suggestions when requested; 18—Turn him over to welfare; 19—Develop more orderly habits; 20—Give him responsibility; 21—Develop interest; 22—Be on the job; 23—Keep work up to standard; 24—Keep production up to standard; 25—See that orders are understood.

Causes of Faulty Orders

Previous to that, the foremen discussed the question, Causes of Faulty Orders. Along with that the foremen listed the results of these causes. The following was drawn up on the conference room blackboard:

Causes of Faulty Orders	Results of Causes
1. Unthoughtful	1. Spoils production
2. Too big hurry	2. Causes of accidents
3. Does not know work	3. Loss of job
4. Excitement	4. Family suffers
5. Over-confident	5. Men lose confidence
6. Orders not clear	6. Spoils machinery
7. Verbal orders	7. Loses time
8. Language not clear	8. Loses money
9. Passing the "buck"	9. Wastes material
10. Orders not complete	10. Poor production
11. Confused orders	11. Lack of production
12. Talks too much or not enough	12. Company loses money
13. Worry	13. Loss of trade

14. Fear	14. Men dissatisfied
15. Poor health	15. Disorganizes work
16. Not interested in work	16. Excess cost of production
17. Poor judgment	17. Increases labor cost
18. Anger	18. Passes the "buck" on cost
19. Carelessness	19. Causes labor turnover
20. Domestic troubles	

The foremen then analyzed faulty orders from the point of cost, as follows:

1—Waste of material; 2—Waste of time; 3—Often costs the job; 4—Company loses trade; 5—Company loses production; 6—Company loses reputation; 7—Causes dissatisfaction; 8—Causes disorganization.

Cases for Discussion

At the conference of the Gardner and Harvey Company foremen, eleven cases were submitted for discussion by the leader, all bearing on the subjects of orders, directions and suggestions. These cases can be used at other conferences, and will therefore be reproduced here:

1. Suppose you gave an order to do a job a certain way, and suppose that man did not do the job as ordered, but did it his way. What would you do?

2. A foreman has considerable difficulty in getting men to certain rather disagreeable jobs. Every time he has such a job to hand out he asks the gang if they will do the job. Generally they object and try to get out of doing the job. What is the trouble? How would you cure this difficulty?

3. What is liable to be the effect of a direct order on a competent workman? Why?

4. Can directions be made as clear as direct orders? Why?

5. A foreman gave an order to one of his men. When he had finished the man asked him several questions concerning what the order wanted. The foreman "bawled" him out and finished by saying, "Don't you understand plain English?" What was the trouble? How would you have handled the case?

6. What are the causes of foremen giving faulty orders?

7. A man has been employed as a helper on a job and is promoted to a worker on that job. When he goes on the job for the first time, the foreman simply tells him to "go to it." Is that foreman taking any chances?

8. How may faulty orders be prevented?

9. A new foreman, in taking charge of a room, hired several hands. A few days later it was reported that a great deal of theft was evident. The foreman ordered the doors locked and every one searched. What was the matter with this order?

10. A foreman gives the following order: "One of you men get that box out of that truck." If there is some delay, whose fault is it?

11. A foreman in making his rounds notices that a man is trying to handle a piece of stock that is too heavy to handle alone and not have a chance for breakage. He says to the man: "That piece is too heavy for you to handle alone. Get somebody to help you." What is the matter with that order?

Discussing a Question

To show how the foremen discussed these questions, let us take for illustration the first question: "Suppose you gave an order to do a job a certain way, and suppose the man did not do the job as ordered, but did it his own way. What would you do?" Now let us quote from the minutes of that session to see how the foremen discussed the question:

Mr. Murback: "I would thoroughly investigate the job and if I found his way was better than the way I told him to do it, well and good, but if not, I would make him do it as he was told."

Mr. Tom Harvey: "He asked if the job should be done any other way than instructed unless the workman went to the foreman and consulted him. If he did not know what the results would be doing it his way, and the foreman was not there to consult, should it be done any other way than the way instructed?"

Mr. Rettig: "If he deliberately did the work different from the way he was instructed, the workman should be responsible for the result."

Mr. Brooks: "I think that the man is responsible as far as his job is concerned, but the foreman is responsible to see that the man is doing the work as instructed."

Mr. Rettig: Mr. Rettig cited a case where if he had charge of 100 men and told a certain man to do a job a certain way, if he does not do as instructed, he could discharge the man or explain to him why he should have done as instructed and he would probably do better next time, but he could not stay right there with that particular man, with all the other 99 men to look after and watch the man go through with the job.

Mr. Howard suggested that it all depends on the size and the importance of the job.

* * *

How Foremen Solve a Production Difficulty

SEVERAL sessions of a foremen's conference can profitably be spent in a discussion of ways and means of solving production difficulties in the plant. By explaining the principles of analyzing a specific production difficulty, the foremen will be made to understand that the analysis method can accomplish far better results than by resorting to sheer guess. The foremen will study the causes of a production difficulty, take into consideration their respective supervisory responsibilities, realize the cost factor involved, and then, based on the facts studied, they will discuss ways and means of remedying the difficulty. Through discussion of one or more produc-

tion difficulties the foremen will arrive at a set formula for solving the difficulty. This alone is valuable, as the foremen will be convinced of the efficiency of using a formula rather than depending on guesswork.

Approaching the Problem

At the conference of the Bemis Bros. Bag Company foremen, two sessions were devoted to the solution of a production difficulty. First, the foremen discussed the distribution of supervision in the planning department. During this discussion an apparent production difficulty developed. This difficulty was stated, "Many revisions of the daily route sheet are made, resulting in lost quality and quantity of production."

"In approaching this difficulty," reported the conference leader, "a formula was used to illustrate one method of getting at such problems. The following is an example of the way this formula was used:

"Responsibility — difficulty — causes — responsibilities — costs — ways and means of remedying.

"By working through this method it was assumed that the particular mistakes or errors in carrying out responsibility may be analyzed to determine the causes, costs and the remedies for the problem. This plan assumes that all persons having a job do have responsibility. Such responsibility cannot be discharged in a perfect way, therefore it is reasonable to assume that errors are made. When errors are made the case can be analyzed to determine the causes, costs and ways and means of remedying the situation."

Solving the Problem

Let us now give a complete statement of the production difficulty already referred to. First of all, must be stated what job is concerned. In this case the job involved is "Planning daily route sheet." The difficulty involved is stated: "Many revisions of daily route sheet are made, resulting in loss of quality and quantity of production."

Next, the foremen analyzed the causes of the difficulty. There were stated:

1—Willingness of salesmen to favor their own customers; 2—Too many people giving orders to planning department; 3—Lack of knowledge of manufacturing problems by sales department; 4—Equipment out of order; 5—Shortage of material; 6—Inefficiency of workmen; 7—Shortage of help in certain departments; 8—Improper or inaccurate planning; 9—Duplication of orders; 10—Insufficient machinery; 11—Seasonal nature of cotton bag business.

In this connection, the writer should point out that the Bemis Bros. Bag Company manufactures burlap bags in addition to paper bags, hence the reference to cotton bag business. This difficulty centered around the manufacture of cotton bags, but the principle under solution holds for other products in the paper industry.

After enumerating the causes, the foremen placed responsibility for the difficulty. In this particular instance the foremen placed the responsibility at the door of the company's salesmen.

Finding Remedies

As the last step in analyzing the difficulty, the foremen enumerated the various ways and means of remedying the situation. These they outlined as follows:

1—Planning department refer salesmen's emergency requests to sales manager; (a) Salesmen might be instructed upon factory problem; (b)—Factory might be given more information as to why emergency orders are necessary; (c) Closer coöperation between sales department and factory.

2—Planning department should avoid planning to run too many jobs at one time in manufacturing department; i. e., complete smaller number of jobs before new job is undertaken rather than having a large number of jobs at once.

The foremen, after offering a solution to the particular production difficulty, took up the question, "Under what conditions shall daily route sheet be revised?" The foremen considered four conditions:

1—Cancellation of order; 2—Equipment out of order; 3—Increasing size of order under construction; 4—Real emergency order approved by superintendent.

"What information should the planning department have before making out the daily route sheet?" the foremen then asked. These they outlined as follows:

1—Estimated capacity of plant for following day; (a) Equipment in running order, (b) Personnel; 2—Actual progress report of work for previous day; 3—Stock report; 4—List of priority from sales department.

This completed the first of the two sessions devoted to the subject of production difficulties. The following day the foremen continued the discussion on the work of the planning department so as to bring out other causes for the change in the daily route sheet.

Emergency Orders

In outlining the conditions under which the daily route sheet should be revised, the foremen the previous day had stated that one of the factors was the emergency order. The foremen now set about to discuss what is really meant by an emergency order and under what conditions should it be issued or approved. The conditions were listed by the foremen:

1—To meet a certain boat or train; 2—Damaged car shipment needs extra bags; 3—To prevent a mill shutdown; 4—To prevent business going to a competitor.

"During the discussion of these points," the leader

summarized after the conference, "it was brought out that the bag business was distinctly a seasonal business, and at certain times of the year bags of one kind or another were in demand, while in other seasons there were no orders. It was further brought out that a great number of orders had to be emergency orders because of trade conditions beyond the control of the factory. It was thought by certain of the group that the high and low peak of production in the plant could be straightened out somewhat by adding fillers during the off season. Equipment in this plant could be used for certain types of fillers. These fillers and the advantages and disadvantages of manufacturing them are listed as follows:

"(a) To make cotton stock; (b) To develop specialties; (c) To obtain specifications from customers; (d) Interchange of business between plants."

The advantage of manufacturing fillers, as listed by the foremen, were:

1—Takes care of seasonal peaks; 2—Prevents labor turnover; 3—Cuts down total costs; 4—Better quality of products; 5—Increased production.

However, the making of cotton stock to take care of seasonal peaks has its disadvantages, which were listed:

1—Invested capital; 2—Available stock in yards; 3—Liability of change in size of bags.

To develop specialties also had its disadvantages, according to the foremen:

1—More equipment; 2—Competition in new field; 3—More overhead; 4—Limited volume; 5—More supervision; 6—Specialties might be seasonable; 7—Invested capital.

It was felt that the interchange of business between plants was impractical.

Forms for Foremen's Use

In solving a production problem at a foremen's conference, there are several forms that can be conveniently used. On the first form the foremen state the foreman's supervisory responsibilities with respect to the job in question. The second form deals with the management factors, and is laid out as follows:

Management

The following are liable to make trouble when the job is reported O. K., unless absolutely known to be right. (The foreman then lists difficulties causing trouble.)

The third and final form is as follows:

TROUBLE ON JOBS

Management

Job .....

Nature of trouble .....

KNOWN CAUSES THAT MAY CAUSE THIS TROUBLE

(Here the foreman lists as many of the known causes as possible.)

Factors Affecting Production

At the A. M. Collins conference, some time was spent by the foremen in studying production factors with a view to helping foremen solve production difficulties. The objectives in the study of these factors were outlined by the leader as follows:

1. To determine the principal factors affecting production.

2. To show how production is affected by organization, teamwork, specialization, and standardization.

3. To bring out how study, research, analysis, planning, scheduling, routing, instruction, supervision, dispatching and management affect production.

4. To show how methods of manufacture, methods of supervision and methods of management affect production.

The foremen discussed in detail the factors concerned in production. They narrowed these down to eight factors as follows:

1—A definite plan; 2—Materials; 3—Processes; 4—Machinery and tools; 5—Working hours; 6—Working conditions; 7—Personnel; 8—Waste.

Other factors the foremen listed were:

1—Study; 2—Research; 3—Analysis; 4—Planning; 5—Scheduling; 6—Routing; 7—Instruction; 8—Supervision; 9—Dispatching; 10—Management.

These factors they discussed in detail.

Foreman Understands Management

A consideration of such factors may be considered as being outside the scope of foremen training. But such is not the case. In order that a foreman may be efficient, he must co-operate with the entire plant management to see that production is efficiently accomplished. In other words, the foreman, besides knowing his own job and understanding the workings of his own department, must understand the workings of the entire management. To be an efficient foreman he must understand management. In a modern industrial organization there is nothing that concerns the entire concern that should not be within the foreman's range of understanding.

That the foreman should have such an understanding is plainly shown in the manner the foremen at the Bemis Bros. Bag Company solved a production problem that on the face of it affected the planning department, but which indirectly affected their own departments. This problem the foremen could not solve by any chance unless they knew the workings of the planning department, of the sales department, and of the other departments besides their own immediate departments. To infuse the foremen with such knowledge—no, rather to make them realize the importance of the workings of the other departments insofar as these directly or indirectly affect their own departments should be the objective of every well organized foremen's conference.

Editorial Comment

By WILLIAM SIBLEY

Bituminous Interests May Be Drawn into Coal Struggle

RECENT actions and impending developments in connection with the coal situation indicate a deeper-going struggle between the United Mine Workers and the anthracite producers than is popularly conceived.

Up to the time this is written the anthracite strike has not achieved its purpose. Indeed, its growing defeat was so evident a few weeks ago that on September 25 desperate efforts were made to organize the non-union miners working in the Fairmount fields (northern West Virginia). These efforts were accompanied by demonstrations characteristic of union methods, but apparently the move failed, for few non-union men responded and production by the non-union mines continues.

The next move will probably be in the nature of a general soft-coal strike to be called during November and in spite of the existing Jacksonville agreement. Whether or not this move will develop as present indications seem to assure, we do not know. We are reasonably sure, however, that such strategy would spell the doom of the United Mine Workers, as there are now nearly 60,000,000 tons of soft coal in storage, and that pile is being added to at the rate of 2,000,000 tons a week, so great is present production. Furthermore, the non-union mines are capable, in case of need, of producing more than seven-eighths of the entire bituminous coal requirements of the country.

It must not be forgotten, however, that it costs a great deal of money to fight the union. By far the majority of the coal producers are not in a healthy condition financially, and even the Pittsburgh and Consolidation companies, both of whom operate over three hundred mines, have not been enjoying prosperity during recent months and are not rolling in gold. Any struggle that would make necessary the maintenance of hundreds of armed guards, barbed wire stockades, and the employment of strike-breakers who always demand high wages for small production, would seriously impair the coal business for the ensuing year.

Because none of Lewis' tactics have proven fruitful thus far, he is now looking for sympathetic support from railroad brotherhoods, teamsters, and other A. F. of L. bodies. This support he must have if his efforts to prevent the movement of non-union coal are successful. Floyd W. Parsons recently said: "The entire situation is filled with powder, and no one can forecast the outcome. Lewis runs his union in much the same manner he would a large corporation. His first, and almost only, consideration is the union members. He is autocratic, dogmatic, confident and fearless. I doubt if he feels any heavy obligation to the public, and I am sure he would be ruthless if occasion demanded. Mr. Lewis is far more courageous than cautious. At the same time, let no one believe that he lacks facts or is not well informed."

In the opinion of the writer, which has been substantiated by several of the leading coal men, Lewis will fail in his effort to obtain effective outside support. That an attempt will be made, however, seems assured. This will cause some alarm and probably affect prices. There would be only wisdom in steps that would fortify and strengthen your present coal reserves.

Our Best Development

TO SAY that the past twenty years have been characterized by deep-going changes and far-reaching developments is to merely repeat what has already been said hundreds of times. But writers and speakers have been wont to confine themselves to the material changes when speaking or writing of recent developments. The radio, automobile, chemistry, medical science and other similar phases are spoken of, after which the subject is dropped.

There have been other changes equally important, albeit not so concrete. The mental development has equaled, if not exceeded in some respects, the material. Only recently Judge Elbert H. Gary recommended to the iron and steel industry that it adopt co-operation as a cure for destructive competition. Thirty years ago that recommendation would have met with howls and derisive slurs from legislators, editors and prosecutors who were making a handsome living off the business of corporation-baiting, trust-busting, and general economic bedevilment. Today those howls are not entirely absent, but their volume is remarkably diminished.

The public's attitude toward large corporations has suffered a great change within the past few years. Only a minority now damn the corporations merely on the ground of sheer size. The public knows more about corporations, more fully appreciates their limitations and handicaps, and is more sympathetic with their efforts than ever before. More and more noticeable has become the "let-me-alone" attitude among the classes of people who formerly thought of corporations and "trusts" in the same breath and with the same blind curse.

This change has been brought about largely because of two factors: First, because of the enormously increased consumption of practically every commodity which has forced the realization that the

—— on Timely Subjects

large concern holds a valuable place in our commercial make-up; second, because railroads, bankers, packers and various other large interests have devoted a great deal of time and money to the education of their employees and their immediate trading public. This education matter has been so successful in combating the both subtle and violently vicious influences that more industries are being drawn into the activity, from which much good may be expected. There will probably never come a time when all the muck-raking and trust-busting legislators and editors will go to Wall or La Salle Streets in search of sleep. We shall probably never see the lion and the fox feeding peacefully from the same carcass. We may expect, however, that with the cheapening of printer's ink, the increasing rapidity of communication, and the development of proper education influences, there will be a freer rein and more latitude given public utilities and large corporations. This is as it should be.

Open-Mindedness Essential to Progress

ABOUT three weeks ago I was a visitor to one of our Missouri River towns and, among other places, stopped to pay my respects to an old friend—factory superintendent for a woven-wire cloth manufacturer. Being mechanically inclined, I took a turn about the plant in company with my friend. Much of interest was to be seen, particularly the process of weaving screen cloth and the handling of the materials. My friend pointed out, with justifiable pride, some of the features of the plant and where he had, here and there, effected short-cuts in the work. All of this was most interesting, and I requested permission to write an article about the methods employed. My friend offered no objection, and I forthwith began to make some notes. These completed, we stepped along to the boiler room and power plant.

Here I found a different story. The first thing that caught my eye was the general untidiness of the whole place. I then saw that the three 200 h.p. boilers were being fired by hand. The gauge glasses were dirty and the steam gauge was so high I could read it only with difficulty. Noting an absence of instruments, I asked the engineer where his CO_2 recorder was. He replied that he had no such instrument; that he took his CO_2 readings with a hand Orsat. When asked how often he used this hand set he replied: "Oh, about every other day." Of course, he had no steam flow meter. Again I put a question: "How do you clean you tubes—and how often?" The answer came: "We clean the tubes with a hand lance, and *try* to get it done every Saturday afternoon." Not being any too robust I ventured no more questions.

As we were making our way back to the office, we were stopped by the president of the concern, to whom I was introduced. Lucklessly, I made mention of the fact that many of his processes were interesting and that I had taken some notes of them. Whereupon the president rose to his full height and wrath and commanded: "Young man—write no articles about *this* plant. It has taken me twenty-five years to develop this business and I don't want any of the secret processes broadcast to my competitors."

That very imperative command, short and to the point, enabled me to immediately classify Mr. President, and told me, better than anything else, why his power plant was in the condition described. The management of that firm had been so wrapped up in its own tiny world "for twenty-five years" that it had not had time to read trade journals or keep in step with the trend of developments. Only by sheer luck did they have a good factory superintendent who could inject a few efficient methods gained from outside experience.

One of the biggest problems in business today is the promotion of mutual understanding among, not only various industries, but among the individual members making up a single industry. As never before in history, scientific discoveries and mechanical inventions are changing the whole complexion of social and industrial life. The whole basis of modern life is being changed year by year and it is increasingly necessary that we forget about our so-thought "secret processes" and awaken to the fact that we learn only in proportion to our ability to teach. Westinghouse, General Electric, Ford, International Harvester, and other prominent industrial firms are where they are, not because of "sharp" business practices or "secret processes," but because they kept awake to developments on the outside as well as the inside—because of the principle of giving thorough teaching.

In the past few years, great strides have been made in the development of facilities for instant communication. This, coupled with high speed transportation of merchandise and materials, has greatly reduced for practical purposes, the size of the world. Markets heretofore potential are now actual, and every business today is sensitive to economic forces hitherto considered too remote to be of moment. Under such a condition it is absolutely necessary that we train ourselves to both give and receive—and having received, *execute*. The day of the "secret-process," "hush-hush" folks has gone.

The proper design of belt drives is an important matter to a paper mill. Slipping or excessively tight belts, poor bearings, badly joined belts, are all sources of power waste, and should be stopped.

Practical Helps for the Mill Man

A Profitable Way to Reclaim Junk

A MILL manager points with pride to a half demolished junk pile and a lengthy list of useful bolts, nuts, gears, pieces of shafting and other material salvaged therefrom. He hired two boys attending the local high school to come in afternoons and Saturdays. They were paid a small hourly wage. They were given a little elementary instruction to help them reclaim the parts that could be made use of. The scheme was mutually beneficial—there was no need of encroaching on a hard-worked millwright's time, the boys learned and earned, and the mill profited.

An Aid to Back Tender

HELP out the back tender by painting numbers on the calender doctors to help him place his air pipes and wrappers. Start with number one about one and one-half feet from the front side frame and put a number every one and one-half feet across one doctor on the dryer side of the calenders and like numbers on the reel side to correspond.

Increasing Decker Capacity

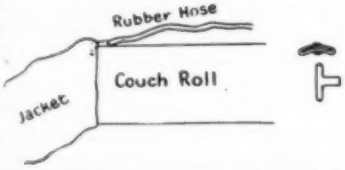
SOME mills run a baffle on the decker thickeners just back of the couch rolls. This helps to maintain the mass of stock which forms just back of the couch roll and increases the capacity of the deckers.

Loosening Frozen Log Piles

THE coming of winter brings to many mills the problem of how to loosen up frozen log piles. One mill throws a steel cable across the pile. There is a winch on one side of the pile and a steel pulley on the other. Attached to the cable is a regular ship's anchor. As the cable is hauled back and forward across the pile, the flukes catch here and there and drag down wood, causing a fall of enough for several hours' work, sometimes for a whole day. The cable lies on the pile and it is little work to shift it as the working point on the pile gets shorter. This device eliminates the use of dynamite, tiresome delays to throw logs in order to start a fall, and in one mill, it has prevented what had come to be the almost inevitable yearly death in the wood yard.

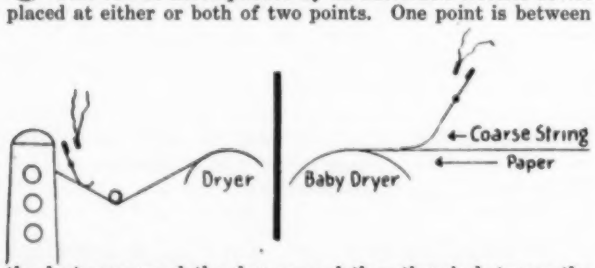
Assisting Jacket into Couch Roll

TO FACILITATE slipping the jacket onto the couch roll, use the following expedient. Make a flat nozzle and cover it carefully with felt. When slipping the jacket onto the couch roll, insert the nozzle on the end of a compressed air hose between jacket and roll, and the film of air between the two will let the jacket slip on more easily. Be careful how much air is used until some experience has been acquired, and be sure to wind with felt all parts of the nozzle likely to touch the metal couch roll.



A Good Break Indicator

ON ANY paper machine, early notice of a break is desirable. This can be accomplished by an automatic electric device placed at either or both of two points. One point is between the last press and the dryers, and the other is between the dryers and the calenders. Several strings dragging on the sheet on the baby dryer will keep the contact open. A light wire on the sheet between the spring roll and the calender stack will keep the contact open at that point. The closed circuit can be made to operate a whistle or klaxon, and in one mill it operates an electro-magnet which closes the doctor on the sweat dryer.

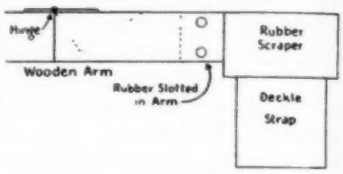


Preserving Wooden Heads for Roll Wrapping

MOST finishing rooms use heavy wooden heads on the top of a wrapped roll to weight down the cardboard head until the glue sets. The life of these wooden heads can be doubled by nailing several thicknesses of old, worn-out paper machine felt around the edge to act as a cushion when the heads are dropped on the floor.

Cleaning Deckle Strap Wipe

CLEANING the wipe on the deckle strap that is usually placed very near the deckle frame between it and the flat deckle strap pulley, is something of a trick. One mill has solved this problem by putting the wipe on a hinged wooden arm. The wipe is lifted off of the strap to clean.



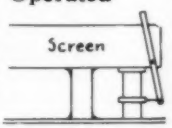
A flat knife-shaped head on dryer spears helps in cutting off a thick wad of paper which has become wrapped around the dryers.

Handling Winder Shaving

IN A mill where it is not possible to drop the winder shaving through the floor, the winderman's work can be simplified by putting a trough under the winder and blowing the shaving out onto the floor with a small fan or by a compressed air jet.

Quick Opening Valves Easily Operated

QUICK opening valves which must be placed in rather inaccessible places can be reached by replacing the metal hand lever by a wooden arm of any necessary length.



Keeping Winder Nuts Tight

SOME winder men are still bothered with how to keep the winder shaft nuts from slacking. It is largely a matter of having the nuts big enough. If they are big enough, a nut and a check nut will never slack. For a shaft for 2¾ inch or 3 inch cores, use 4½ inch to 5 inch nuts.

Gravity in Material Handling

MANY a mill uses the elevator for pulp laps or other material going to the shipping shed when a little chute from the floor above to the level of the car doors would eliminate much trucking.

Bureau of Standards Completes Glue Test

The Bureau of Standards has completed its series of tests on the relative value of glue and casein as used in coating paper. The results have demonstrated that with the proper selection of the glue used and its proper adaptation to local conditions and product requirements, the use of glue in coating paper requires little change in operation technique from procedure with casein. It has also been demonstrated that the choice of various types of glue offers a considerable latitude within which local conditions can be met, and that the use of a glue-bound coated paper offers no difficulty to the printer and engraver for ordinary work. The interest displayed in these tests was the outgrowth of attempts over a period of years to find a substitute for casein, the supply of which, as well as the quality, have been subject to great fluctuation.

During the month of September, United States news print mills, operating at 86.6 per cent of capacity, turned out 121,019 tons, while the Canadian mills, operating at 95.0 per cent of capacity, turned out 124,704 tons.

Fall Meeting of T.A.P.P.I. at Kalamazoo

Engineers and Chemists Discuss Training Methods, Testing Size-Fastness, Saving of Waste, Stream Pollution and Paper Drying

THE Technical Association of the Pulp and Paper Industry held its fall meeting in Kalamazoo, Mich., at the Park-American Hotel, on Wednesday and Thursday, October 14 and 15. Nine years previously the association held its first spring meeting there and the contrast in numbers attending then and now must have impressed some of the older members, a few of whom were present who had attended both meetings. The association then had a membership of 213 and some fifty members took part in the proceedings. At one of the sessions of the 1916 spring meeting, Robert B. Wolf, at that time connected with the Burgess Sulphite Fibre Company, first described the system of management and control of operations followed in sulphite pulp cooking under his direction at the mills in Berlin, N. H. John D. Rue was then professor of chemistry at the University of Michigan, and Fred C. Clark was in charge of the paper section of the Bureau of Standards at Washington. All three were present at this year's meeting, as were also F. M. Hodge, Jacob Kindleberger, W. J. Lawrence and Alex. W. MacVie, of Kalamazoo, in addition to the writer of this report, who was at that time secretary of the association.

Growth of the Association

How the association has grown in numbers and influence since its first spring meeting in the year following its organization is now a matter of record. According to the report of the secretary, as read by R. S. Kellogg in the absence of Mr. MacNaughton who was visiting mills in Sweden, the association has now on its roster upwards of 600 members, including thirty-nine corporate members, with a balance in the treasury of nearly $7,000.

Secretary's Report

President George K. Spence opened the meeting by calling for the reports of officers and committees. R. S. Kellogg offered an ad interim report of the work of the secretary's office: Subsequent to the annual meeting in February, seventy names had been added to the list of members, several being reinstatements, and there were thirty applications under consideration. Nine corporate members had joined, making a total of thirty-nine in this class. Finances were reported in improved condition, the balance to September 30, 1925, being $6,993.60, as against $5,864.23 for the corresponding date last year.

COMMITTEE REPORTS

Under reports of committees, responses were made by Webster N. Baker for the Committee on Paper Drying, who urged a good attendance, and discussion at a symposium on air and condensate removal and supply of steam to dryers which would take place next day at the Parchment Community House. In order to stimulate interest in the subject, Mr. Baker said he had written to a number of manufacturers of drying systems who would have representatives present to give their views and start discussion.

Only a few committee chairmen were present at the opening session, but brief progress reports had been received by mail from C. J. West, Abstracts and Bibliography; D. V. Lowe, Coated and Processed Papers; W. E. Brawn, Mechanical Pulp and W. S. McClellan, Soda Pulp.

Training in the Industry

A report by Martin L. Griffin on Training in the Industry was read in his absence by R. S. Kellogg. A committee of the association had been formed to develop courses of instruction in papermaking. Already more liberal opportunities were being extended to operatives in the pulp and paper industry, the report said. For instance, more complete courses were being offered through correspondence, class work and a combination of both, at a moderate expense by the Division of University Extension of Massachussetts.

Mr. Griffin observed that class work must be organized in papermaking centers by those interested in such communities and so far as possible sustained by their own efforts. The Division of University Extension intends to provide materials for the class work and correspondence supervision.

Technical Men Will be Asked to Assist.—One part of the committee's duties being "to foster and aid in creating a larger background of those who can act as instructors in class work", the Committee on Training in the Industry proposes to ask all technical men and any others who by long experience are qualified to give instruction to assist wherever class work may be organized.

The committee looks to the New York State College of Forestry, "the only institution of its kind giving a four years' course in forestry and papermaking", for co-operation in the work, since the committee regards it as the college's opportunity to aid its own graduates and make actual contact with the industry in this way.

Co-operation Invited.—Mr. Griffin asked the executive committee of T. A. P. P. I. to pave the way for its Committee on Training in the Industry, so that co-operative work might be effected with the "vocational" committee of the Superintendent's Association and the Canadian Technical Section, without conflict or duplication of effort.

The T. A. P. P. I. Committee on Training in the Industry is composed of Martin L. Griffin, chairman, and the following associates:

Dr. James A. Moyer, director of Division of University Extension, Commonwealth of Massachuetts, State House, Boston; Prof. R. T. Haslam, school of chemical engineering practice, Massachuetts Institute of Technology, Cambridge, Mass.; Prof. C. E. Libby, school of pulp and paper manufacture, New York State College of Forestry, Syracuse, N. Y.; J. O. Mason, operating manager, Laurentide Company, Ltd., Grand' Mère, P. Q.; Henry F. Obermanns, general superintendent, Hammermill Paper Company, Erie, Pa.; Leon M. Yoerg, general superintendent, fine mills, American Writing Paper Company, Holyoke, Mass., and H. G. McDowell, sales engineer, The Pusey & Jones Company, Wilmington, Del.

Report on Textbook Sales

Following the presentation of Mr. Griffin's report, Mr. Kellogg made a statement for the Joint Vocational Education Committee on textbook sales, to October 7, 1925.

Of Volume I a total of 2,681 bound and loose copies had been sold. Vol. II sold to the extent of 1,868 copies; vol. III, 3,089 copies; vol. IV, 2,342 copies and vol. V, to date, 1,648 copies, a total of 11,688. The balance of U. S. publication fund was stated as $1.306, and the Canadian fund, $1,234.01. The accumulation of funds from royalties was $5,068.47, making a total balance of $7,608.48.

Linsey T. Crossley reported on the progress of the correspondence courses in papermaking conducted by the Institute of Industrial and Domestic Arts at Gardenvale, P. Q., where 725 students had been enrolled.

George D. Bearce, for the Committee on Waste in the Industry, announced that the afternoon sitting would be given over to a discussion of the operation of save-alls, a sort of experience meeting at which the subject of stream pollution would also be considered.

Standard Testing Methods

C. R. Tait responded for M. A. Krimmel when the report of the Committee on Standard Methods of Testing Materials of which Mr. Krimmel is chairman, was called for.

This committee has decided to use the standard methods of the American Society of Testing Materials as standards for the Technical Association of the Pulp and Paper Industry, so that methods for testing materials and specifications for materials already written by the American Society for Testing Materials will now be considered as the standard methods of T. A. P. P. I. It was stated that modifications would be made

wherever necessary to bring the methods in line with the requirements of the pulp and paper industry.

Classification of Materials.—For future work of the T. A. P. P. I. Committee on Standard Methods of Testing Materials, the following classification of materials into groups has been adopted:

1, Bleaching powder, liquor and sludge; 2, casein and coating materials; 3, clay and fillers; 4, surface sizing agents; 5, lime and limestone; 6, engine sizing agents; 7, sulphate and soda sludge; 8, sulphur; 9, water; 10, salt cake.

The major portion of the time of the committee will be spent in reviewing, checking, revising, amending and adding methods for testing the materials listed. Each member of the committee will be responsible for one group of materials and it will be the duty of this member to investigate thoroughly the present standard methods for testing the material or materials in his group and to report at the annual meeting in the spring of 1926, the result of the investigation, together with recommendations for alterations of the present standard methods.

A Visitor from Mexico

After an announcement by Fred. C. Clark concerning the dinner in the evening, President Spence introduced Senor Jose de la Macorra, Jr., technical director of the San Rafael Paper Company, Mexico City, which operates two well equipped paper mills in Mexico not far from Mexico City, which are said to have no superior in the United States. Senor Macorra exhibited photographic views of the San Rafael and Progresso mills and extended an invitation to the members of T. A. P. P. I. to visit them. He regretted it would be impossible for him to attend all of the sessions as, on account of illness in his family, he was compelled to hasten his departure for Mexico that afternoon.

Tests for Size-Fastness

The meeting was then turned over to B. W. Scribner, chief of the paper section of the Bureau of Standards, Washington, who conducted a session on paper testing. After giving an outline of work to be done by the Committee on Paper Testing, he called on F. T. Carson, assistant physicist of the Bureau, to present a paper on Methods of Testing the Degree of Sizing of Paper, which he did, illustrating it with charts and diagrams displayed prominently on a blackboard facing the audience.

Mr. Carson began by calling attention to the bewildering array of methods which had been proposed for measuring the sizing quality, size fastness or degree of sizing of paper. Apparently every conceivable scheme had been used in the attempt to develop a dependable method. One of the exhibits was a diagram showing a sort of family tree of some thirty published methods and their modifications. Commenting on these, he said that probably half a dozen sized papers tested by each of the methods enumerated would give at least twenty-five different classifications.

Surface Sizing and Internal Sizing.—It was desirable, he said, to recognize two categories of degrees of sizing and he recommended that "degree of surface sizing" and "degree of internal sizing," or their equivalents be recognized.

Mr. Carson explained "degree of surface sizing" as a measurement of the resistance to the spreading or feathering of ink. The test should be done with writing ink to determine its behavior on the surface of the paper. This might be accomplished by examining ink lines under a microscope with a micrometer scale. This problem was, he said, well treated by Herzberg in his book **Papierpruefing.**

As to the "degree of internal sizing," this referred to the resistance offered by paper to the penetration and absorption of aqueous solutions in the direction of its thickness. Twenty-nine of thirty-two methods cited by him involved the attempted measurement of this property of resistance to penetration and absorption of water. He thought that too much prestige had been conferred on the ink flotation method.

Regarding methods of employing interacting solutions applied to opposite sides of the sheet, he considered the Stoeckigt method as the best, because ammonium thiocynate was not strongly adsorbed, which could not be said of the ferric chloride test which is strongly adsorbed and is at times misleading.

Electrolytic Tests.—Stanley A. Okell's electrolytic method, which was published originally in **Paper** for April 11, 1917, was capable of giving very positive results under certain modifications. Comparison of two modifications were made by Mr. Carson. The Bureau of Standards' modification retains the Wheatstone bridge or null method used by Okell, but substitutes a sensitive alternating galvanometer for the telephone receiver. The Fourness and Boon modification substitutes for Okell's method of measuring charged conductance a series circuit containing a milliameter and this, Mr. Carson said, makes for rugged construction which is desirable for mill use.

Sources of Error.—He said there was a source of error of major importance common to both types of the Okell size-fastness tester. This error, called the resistivity error, is concerned with the retention of films or bodies of air which partially insulate the wet paper from the passage of an electric current. The error appears to be the greater, the greater the degree of sizing, thus exaggerating the degree of sizing of hard sized papers.

Comparison of Other Methods.—The Bureau of Standards has concentrated upon the development of methods which measure the behavior of water alone in penetrating into and through paper. Herig's method was an attempt in the right direction but was not sufficiently sensitive. The ground-glass method was well suited as a "limit" test where a maximum limit could be set for the measured property, but was of little value when a definite figure was desired. The curl method was referred to as simple, rapid and useful for thin papers.

Bureau of Standards Test.—A more generally applicable test was a new indicator test developed at the Bureau of Standards which measures the time required for water of definite temperature to penetrate through paper. One or more mixtures of pulverized sugar and soluble dyes (50 parts sugar to 1 part dye) are sprinkled on paper through a sieve and the paper is floated on water. When the water penetrates through, the mixture develops quickly and markedly the color of the dye in solution, which was previously masked by the white sugar, the sugar serving both as a diluent and a carrier of the transuded water.

Simplicity of Apparatus.—Mr. Carson passed around a specimen of the apparatus necessary to prepare and use the indicator mixture. This consisted of a fluted sieve made by folding a rectangular piece of Fourdrinier wire of 70 to 80 mesh crosswise every quarter of an inch so as to produce a series of troughs and crests. The sugar-dye mixtures are put in the troughs and the sieve held about a quarter of an inch above the specimen to be tested. It is released and allowed to fall through this small height on the specimen, as a result of which the sugar-dye mixtures are laid down in parallel lines together. On floating the specimen in water with the sugar-dye mixtures uppermost the water penetrates through and develops the color of the dye in the mixture.

Types of Sugar-Dye Mixtures.—Three types of sugar-dye mixtures were specified, as follows:

(1) Sugar, 50 parts; National wool yellow, 1 part.
(2) Sugar, 50 parts; methyl green, 1 part.
(3) Sugar, 50 parts; Pontacyl scarlet, 1 part.

The indicator test was said to be easy to carry out, no difficulty being experienced in getting check results. The end point was said to be less sharp than in the curl test, but check readings could be made within a few percent. It was recommended that comparative tests be made at even temperatures and the paper previously conditioned at a definite relative humidity.

By charts Mr. Carson showed the results of ink flotation tests, the Stoeckigt test, electrolytic, curl and indicator tests. The indicator method gives the most probable relative values for degree of internal sizing. The curl method checks it well, with a few exceptions, while the electrolytic is rather erratic. The ink flotation test was declared fruitless of information and had been discarded.

Mr. Carson concluded by saying that the curl method and the new indicator method, when used under like conditions of temperature and humidity, came nearer to giving the correct relative degree of internal sizing than any other available method.

Discussion of the Tests

The subject was opened to discussion by the members. John Traquair touched on the absorbency of different papers for

different inks, and Allen Abrams spoke of the relation between porosity and density, asking if it were not a question of capillarity rather than air spaces carrying water. He gave it as his opinion that calendering had a tendency to break down the sizing.

Mr. Scribner agreed that it was possible to destroy the sizing effect by calendering a wet sheet.

W. E. B. Baker said that the effect of sizing does not begin until a certain density of sheet is reached, and he called attention to the paper read by John H. Graff at the last annual meeting of T. A. P. P. I.

The chair was then resumed by President Spence who announced that luncheon was ready and suggested an adjournment, which was taken till 2 o'clock.

AFTERNOON SESSION

On reconvening at 2 o'clock, Robert A. Hayward made several announcements for the committee of arrangements concerning next day's program of meeting at the Parchment Community House and subsequent visits to mills.

The chair was then taken by George D. Bearce who conducted a session for the Committee on Waste in the Industry of which he is chairman. He introduced the subject with a comment on the length of time it had been under study, Senor Maccaro, for instance, had told him that a reclamation system had been started at the San Rafael mill in Mexico City in 1910. The problem was a diversified one, as each grade of paper required special treatment. He called upon Vance P. Edwardes, of the Forest Products Laboratory, to tell what had been accomplished in paper mills by the use of save-alls.

Efficiency of Save-Alls

Mr. Edwardes said he had no formal report to present and would content himself with giving operative data from mills making various kinds of paper to show the efficiency of save-alls in the recovery of stock from white water. As most of the data supplied by Mr. Edwardes has been already given in our report of the special meeting of T. A. P. P. I. at the Chemical Exposition, on Wednesday, September 30, readers may be referred to page 1094 of THE PAPER INDUSTRY for October, 1925, for tabular details.

Mr. Edwardes spoke of the growing tendency of state officials to interfere with the operation of paper mills because of alleged pollution of watercourses and he suggested, as the question of stream pollution was definitely linked up with the question of white water reclamation, that an effort should be made to co-operate with State authorities. The subject was one that was pressing for attention and if the industry did not move of its own accord steps might sooner or later be taken to enact legislation that would be exceedingly troublesome to paper manufacturers.

Chairman Bearce remarked that if the mills succeeded in recovering stock from white water that is now wasted, stream pollution would be reduced and all complaint would cease.

A Criticism by Mr. Server

H. W. Server, chairman of the Committee on White Water of the American Pulp and Paper Mill Superintendents' Association was asked to discuss the subject and he suggested that the figures given by Mr. Edwardes might be misleading if not explained, as it appeared that moisture in stock and moisture retained in paper had not been taken into consideration. In his mill (Miami Paper Company) a bone-dry figure was used for estimating the quantity of paper that might be produced from a given amount of stock. He had obtained good results and was satisfied with the tank sedimentation system in use at West Carrollton, Ohio.

Answering Mr. Server, Mr. Edwardes informed the meeting that all figures quoted by him referred to calculations on an air-dry basis.

John Traquair had only one criticism to make of the Dorr save-all which was that it must be kept operating continuously, for if stopped for fifteen or twenty minutes frothing develops and causes trouble.

Abstruse Matters

W. E. B. Baker joined in the discussion and described the operation of the Dorr save-all, contrasting it with the small type of Bird save-all. Interspersed with a good deal of technical information concerning different types of save-alls, Mr. Baker discussed viscosity as a measure of surface friction, as well as the density of cellulose fibers and other more or less abstruse matters, which started a rather involved debate that led to no definite conclusion.

New Method of Cooking Straw

John D. Rue described a new process of cooking straw for the manufacture of Strawboard, which had been elaborated by himself and William Monsson at the Forest Products Laboratory, Madison, Wis. The straw is digested in a solution of sodium carbonate and sodium sulphite, in the proportion of 7½ lb. of carbonate and 1½ lb. of sulphite for each hundred pounds of straw. The process, as compared with the lime process, is said to give a product of diminished odor, higher yield and superior physical properties, but the cost may be as much as $3.13 per ton more than the lime product.

Stream Pollution

The subject of stream pollution was reintroduced by Mr. Rue who presented another paper by himself and Francis G. Rawling, entitled "A Proposal for Reducing the Contamination of Streams by Strawboard Mills," which covered the ground of the previous paper, but emphasized the low proportion of chemicals to straw in the cooking process, which made recovery easier. It was assumed that 80 per cent of the sodium carbonate could be recovered from the spent liquors of the new process.

Mr. Rue and his associate urged the mills interested to cooperate in making a commercial demonstration of the suggested process, believing that the gravity of the stream pollution question warranted the expenditure by the mills of the funds which the operation of such a recovery system would entail.

Dr. Otto Kress asked if any real information was available concerning the damage to fish life by mill effluents and no answer being forthcoming, Chairman Bearce suggested that steps be taken to make public what had been done to recover materials from the effluents of mills.

Allen Abrams was openly skeptical about the alleged damage to fish life that resulted from draining white water into streams, as he said that some of the men in his mill often dropped a line surreptitiously out of the window at a point where the white water flowed out and caught messes of fine pike which seemed to flourish and grow fat in the effluent.

Mr. Rue mentioned that the only literature pertaining to stream pollution available was contained in the 1903 report of the New York State Conservation Commission.

President Spence remarked that the propaganda in regard to stream pollution had all been conducted heretofore on one side—that of the opponents of stream use by paper mills—and he considered it high time that something were done on the other side.

It was the opinion of John Traquair that certain watercourses are really improved by an admixture of paper mill waste, especially those streams which are used for drainage purposes in the carrying off of sewage, and he mentioned a case in point.

This brought the proceedings of the afternoon sitting to a close and adjournment was taken at 5 o'clock, in order to give the members time to get ready for the banquet which was scheduled to begin at 7 p. m.

Banquet Well Attended

The attendance at the banquet was swelled by executives and heads of departments from mills in the Valley, many ladies being present. In addition to notable speeches by Dr. William R. McCracken of the Western State Normal School and Congressman-Elect Joseph L. Hooper, there was community singing and orchestral music, and to add to the enjoyment of the evening, Phineas Wheat and Robert Smith, of the Kalamazoo Vegetable Parchment Company, sang songs in costume, delighting the audience with take-offs on some of the more prominent members of the association, as when he celebrated Miss Kiely and Fred Clark in verse. As a paper testing expert, Miss Kiely was said to have "perfect formation, good fibre and finish," while "Band-Box Fred Clark is the paper mill sheik."

Dr. McCracken paid a splendid tribute to the paper mill chemist, in rising to take charge of the proceedings as toast-

master. He declared that the chemist of today is "sitting pretty" in industry and would soon take the commanding position to which he was entitled by his technical knowledge and scientific attainments.

Representative Hooper made the principal speech of the evening, giving an eloquent exposition of the Constitution of the United States. He reviewed its history and the conditions that prevailed when it was adopted. He said that the Constitution of the United States had given its people more opportunity for development and advancement than are enjoyed in any other country.

Short talks were made by Linsey T. Crossley, R. S. Kellogg and J. N. Stephenson. The banquet was closed by President Spence who thanked the local committee of arrangements for the excellent program of entertainment which had been provided, giving special credit to Fred C. Clark, chairman, and Ralph A. Hayward, W. J. Lawrence and R. O. Brundage, his associates.

THURSDAY'S SESSION

A session on paper drying was held at the Kalamazoo Vegetable Parchment Company Community House on Thursday morning. This was in charge of Webster N. Baker, chairman of the Committee on Paper Drying, and R. W. Leeper, chairman of the Committee on Heat, Light and Power. The meeting was opened by President Spence who afterwards resigned his chair to Mr. Baker.

Mr. Baker opened the proceedings by calling on F. C. Farnsworth, of the Farnsworth Company, Providence, R. I., to explain the Farnsworth drying system of forced steam circulation and induced drainage. This was in accordance with the plan adopted by the chairman of the paper drying committee to give manufacturers of drying systems an opportunity to present the advantages of their apparatus. Mr. Farnsworth was followed by J. O. Woodsome, the originator of a drying system, who is now connected with the Backus-Brooks Company of Minneapolis; A. E. Armstrong of the Armstrong Machine Works, Three Rivers, Mich; W. B. Fulton of the Fulton Engineering Company, Middletown, Ohio; R. Skagerberg and Ogden Minton, of Greenwich, Conn.

Points in the Drying of Paper

The important points to be considered in the drying of paper were admirably stated in the talk made by Mr. Armstrong. He said (1) the felt and squeeze rolls should be made to eliminate as much water as possible before the sheet is passed over the dryer; (2) attention should be paid to the heating and ventilation of the machine room so as to take care of the vapor evaporated from the paper; (3) the drainage or economical control of the dryer temperature was a separate engineering problem.

The time was too short to permit of Ogden Minton giving a detailed account of his vacuum drying apparatus, but he exhibited drawings of it.

Guests at Community House

The members of T. A. P. P. I. were the guests of the Kalamazoo Vegetable Parchment Company at a luncheon in the afternoon which brought the fall meeting to a close. J. N. Stephenson was asked to speak at the close of the luncheon and he invited all present to meet with him in Montreal next January at the annual convention of the Technical Section of the Canadian Pulp and Paper Association, after which President Spence thanked the Kalamazoo Vegetable Parchment Company for the entertainment and hospitality which had been so generously offered the visitors.

Mr. Kindleberger Talks

Acknowledgment was made by Jacob Kindleberger, president of the Kalamazoo Vegetable Parchment Company, who said, with reference no doubt to the discussions at the session on paper drying, that while he had attended many conventions over a number of years he had never head so many hot-air artists as at this convention. "We are tickled pink to welcome you to Parchment. I hand you the key and you can go where you like. The greatest thing about this meeting of technical men is the fact that so many of you are willing to get together and tell each other of the good things you have in your mills, withholding nothing. Of all the good things you have heard on a dry subject this is the best of all."

Following the luncheon, the members were taken on visits of inspection to a number of mills in and about Kalamazoo.

THE ATTENDANCE

The attendance at the fall meeting of the Technical Association numbered 139, as indicated by the secretary's register, but many were present who failed to register, and upwards of 150 members and visitors actually took part in the proceedings at one time or another. The following registered:

Peter Abel, Stickles Steam Specialty Company, Indianapolis, Ind.; Allen Abrams, Cornell Wood Products Company, Cornell, Wis.; John E. Alexander, Nekoosa-Edwards Paper Company, Port Edwards, Wis.; C. E. Apelgren, Filer Fiber Company, Filer City, Mich.; A. E. Armstrong, Armstrong Machine Works, Three Rivers, Mich.; Irvin Austin, Lee Paper Co., Vicksburg, Mich.

W. E. Byron Baker, Continental Paper & Bag Mills Corp., New York, N. Y.; W. Noyes Baker, International Paper Company, Glens Falls, N. Y.; Daniel S. Baker, P. H. Glatfelter Company, Spring Grove, Pa.; George D. Bearce, Newsprint Service Bureau, New York, N. Y.; Charles A. Bauer, Bauer Bros. Company, Springfield, Ohio; Dr. Theobold C. Bentzen, Whiting-Plover Paper Company, Stevens Point, Wis.; Robert B. Best, Western Paper Makers Chemical Company, Kalamazoo, Mich.; George W. Bicking, Bureau of Standards, Washington, D. C.; George J. Bolender, Western Paper Makers Chemical Company, Kalamazoo, Mich.; L. M. Booth, Booth Chemical Company, Elizabeth, N. J.; Ralph L. Bosworth, Crocker McElwain Company, Holyoke, Mass.; Harry Bradford, Rex Paper Company, Kalamazoo, Mich.; Dr. Walter Brecht, Hammermill Paper Company, Erie, Pa.; C. M. Bryan, Strathmore Paper Mills, Mittineague, Mass.; Ray O. Brundage, Kalamazoo Vegetable Parchment Company, Kalamazoo, Mich.; Homer F. Brundage, Kalamazoo Blow Pipe Company, Kalamazoo, Mich.

Olin W. Callighan, Allied Paper Mills, Kalamazoo, Mich.; James A. Cameron, Cameron Machine Co., Brooklyn, New York; Arthur E. Camp, Michigan Paper Co., Plainwell, Mich.; F. T. Carson, Bureau of Standards, Washington, D. C.; C. E. Chaffin, General Engineering Company, New York, N. Y.; Fred C. Clark, Hawthorne Paper Company, Kalamazoo, Mich.; Max Cline, International Paper Company, Glens Falls, N. Y.; G. N. Collins, Dill & Collins Co., Philadelphia, Pa.; P. W. Codwise, Beaver Products Company, Inc., Buffalo, N. Y.; R. E. Conklin, Michigan Paper Company, Plainwell, Mich.; John Cornell, The Paper Mill, New York City; T. Linsey Crossley, Industrial Laboratories, Ltd., Toronto, Ont.; W. W. Cronkhite, General Electric Company, Schenectady, N. Y.; C. E. Curran, Forest Products Laboratory, Madison, Wis.

William F. Dewey, B. D. Rising Paper Company, Housatonic, Mass.; Arthur C. Dreshfield, Western Paper Makers Chemical Co., Kalamazoo, Mich.; A. C. Duncan, Western Paper Makers Chemical Company, Kalamazoo, Mich.

E. E. East, Michigan Paper Company, Plainwell, Mich.; Vance P. Edwardes, Forest Products Laboratory, Madison, Wis.; O. S. Egan, Nekoosa-Edwards Paper Company, Port Edwards, Wis.; C. M. Eshelman, Cameron Machine Company, Brooklyn, N. Y.; G. F. Enderlein, Wausau Sulphate Fibre Company, Mosine, Wis.; H. S. Farans, Watervliet Paper Company, Watervliet, Mich.; F. C. Farnsworth, Farnsworth Company, Providence, R. I.; Herbert H. Fish, Jr., Great Western Paper Company, Ladysmith, Wis.; James A. Foxgrove, Western Paper Makers' Chemical Company, Kalamazoo, Mich.; Charles Fuhrmeister, Jr., Oliver Continuous Filter Company, New York, N. Y.; W. B. Fulton, Fulton Engineering Company, Middletown, Ohio.

O. P. Gephart, Miami Paper Company, West Carrollton, Ohio; W. M. Y. Gilkey, Michigan Paper Company, Plainwell, Mich.; Otto J. Goeppinger, Armstrong Machine Works, Three Rivers, Mich.; W. F. Goldsmith, Hawthorne Paper Company, Kalamazoo, Mich.; C. S. Gravatt, Western Union Telegraph Company, New York, N. Y.; H. W. Guettler, Fibre Making Process, Inc., Chicago, Ill.

Jas. W. Hagar, Crane & Co., Dalton, Mass.; Howard P. Hall, Paper Trade Journal, New York City; R. H. Harding, Bauer Bros.; Springfield, Ohio; R. O. Harper, B. D. Rising Paper

Company, Gt. Barrington, Mass.; H. H. Harrison, Crystal Tissue Company, Middletown, Ohio; A. D. Harvey, Nash Engineering Company, S. Norwalk, Conn.; George H. Harvey, Gardner-Harvey Company, Middletown, Ohio; R. A. Hayward, Kalamazoo Vegetable Parchment Company, Kalamazoo, Mich.; C. L. Higgins, Finch, Pruyn Company, Glens Falls, N. Y.; Rudolph Hueckler, Eddy Paper Corp., Three Rivers, Mich.

H. W. Jesperson, Western Electric Company, Chicago, Ill.; H. L. Joachim, Central Paper Company, Muskegon, Mich.; Walter A. Johnson, Eddy Paper Corp., Three Rivers, Mich.; E. J. Johnstone, Paper Makers Chemical Company, Holyoke, Mass.; L. E. Jonte, Hoberg Paper & Fibre Company, Green Bay, Wis.

Thomas J. Keenan, THE PAPER INDUSTRY, New York, N. Y.; W. H. Kenety, Northwest Paper Company, Cloquet, Minn.; T. Kellberg, Drying Systems, Inc., Chicago, Ill.; Helen U. Kiely, American Writing Paper Company, Holyoke, Mass.; R. P. Kite, The Dorr Company, Chicago, Ill.; Arthur F. Klein, Hammermill Paper Company, Erie, Pa.; Paul Koenig, Continental Paper & Bag Mills Corp., New York, N. Y.; Otto Kress, Thilmany Pulp and Paper Company, Kaukauna, Wis.

W. J. Lawrence, Western Paper Makers Chemical Company, Kalamazoo, Mich.; Frank D. Libby, Kalamazoo Vegetable Parchment Company, Kalamazoo, Mich.; John S. Little, Western Electric Company, Chicago, Ill.; L. E. Longstreth, Gardner-Harvey Company, Middletown, Ohio; C. L. Lufkin, Calvert Lithographing Company, Detroit, Mich.; Jose de la Macorra, Jr., San Rafael Paper Company, Mexico City, Mexico; H. F. Maheley, P. H. Glatfelter Company, Spring Grove, Pa.; W. K. McNair, Northwest Paper Company, Cloquet, Minn.; J. D. MacMahon, Mathieson Alkali Works, Inc., Niagara Falls, N. Y.; Clarke Marion, Champion Coated Paper Company, Hamilton, Ohio; W. N. H. Morrison, Forest Products Laboratory, Madison, Wis.; A. E. Montgomery, J. O. Ross Engineering Corp., Chicago, Ill.; C. E. Mueller, Western Paper Makers Chemical Company, Kalamazoo, Mich.; Ogden Minton, Greenwich, Conn.

C. G. Naylor, Naylor Spiral Pipe Company, Chicago, Ill.; C. B. Neil, Michigan Paper Company, Plainwell, Mich.

L. A. O'Toole, Western Paper Makers Chemical Co., Kalamazoo, Mich.

F. E. Pearson, Munising Paper Company, Munising, Mich.; Harold L. Peckham, Hammermill Paper Company, Erie, Pa.; George S. Pierson, Kalamazoo, Mich.

M. Redmond, Kalamazoo Paper Company, Kalamazoo, Mich.; E. O. Reed, Government Printing Office, Washington, D. C.; J. O. Ross, J. O. Ross Engineering Corp., New York, N. Y.; John D. Rue, Forest Products Laboratory, Madison, Wis.

C. F. Sammet, Crane & Co., Dalton, Mass.; Thomas H. Savery, Jr., Chicago, Ill.; E. R. Schafer, Forest Products Laboratory, Madison, Wis.; B. W. Scribner, Bureau of Standards, Washington, D. C.; H. W. Server, Miami Paper Company, West Carrollton, Ohio; John H. Sherman, The Huron Milling Company, New York, N. Y.; R. Skagerberg, Drying Systems, Inc., Chicago, Ill.; Jos. H. Slater, Escanaba Paper Company, Escanaba, Mich.; L. E. Smith, Nekoosa Edwards Paper Company, Port Edwards, Wis.; Geo. K. Spence, New York & Pennsylvania Company, Johnsonburg, Pa.; Arthur O. Spierling, Hammermill Paper Company, Erie, Pa.; Stephen A. Staege, Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa.; J .N. Stephenson, Pulp & Paper Magazine, Gardenvale, P. Q.; R. E. Strawbridge, Indiana & Michigan Electric Co., South Bend, Ind.; E. P. Strong, The Munising Paper Company, Munising, Mich.

Charles R. Tait, Hammermill Paper Company, Erie, Pa.; E. A. Taylor, Grasselli Chemical Company, Cleveland, Ohio; John Traquair, Mead Pulp & Paper Co., Chillicothe, Ohio; E. C. Tucker, Chemical Paper Mfg. Company, Holyoke, Mass.; P. Y. Tuney, General Electric Company, Grand Rapids, Mich.; E. J. Turner, Western Paper Makers' Chemical Company, Kalamazoo, Mich.

A. G. Wakeman, Fox River Paper Company, Appleton, Wis.; John H. Weimer, Lee Paper Company, Vicksburg, Mich.; A. Wiberg, Gilbert Paper Company, Menasha, Wis.; E. T. Williams, Kalamazoo Vegetable Parchment Company, Kalamazoo, Mich.; Ben Wahl, Detroit Sulphite Pulp & Paper Company, Detroit, Mich.; William J. Weed, Electro Bleaching Gas Company, New York, N. Y.; E. Frank Whittington, Kalamazoo Vegetable Parchment Company, Kalamazoo, Mich.; George E. Williamson, Strathmore Paper Company, Mittineague, Mass.; J. L. Williamson, J. O. Ross Engineering Corp., Chicago, Ill.; Robert B. Wolf, R. B. Wolf & Co., New York, N. Y.; C. D. Wood, Grasselli Chemical Company, Cleveland, Ohio; John C. Wood, Kalamazoo Vegetable Parchment Company, Kalamazoo, Mich.; J. O. Woodsome, Backus-Brooks Company, Minneapolis, Minn.

H. D. Yoder, Pemberthy Injector Company, Detroit, Mich.; G. H. Young, Fulton Engineering Company, Middletown, Ohio.

Supply and Equipment Association Holds First Annual Meeting

THE first annual meeting of the Supply and Equipment Association, Inc., of the American Paper and Pulp Industry was held at the Old Colony Club, at the Waldorf-Astoria Hotel, New York, on Thursday, October 15, when W. N. Wilkinson made his annual report and the meeting was addressed by Norman W. Wilson, vice-president of the Hammermill Paper Company and president of the American Paper and Pulp Association, as well as by Charles A. Gordon, vice-president of the Oxford Paper Company, and Dr. Hugh P. Baker, executive secretary of the American Paper and Pulp Association.

President Wilkinson's Address

In the annual address of the president, Mr. Wilkinson said in part:

"During the eight months which have ensued since we actually started to function, the officers of this Association have frequently been in touch with Dr. Baker and his assistants for purposes of consultation in our effort to co-operate with and assist the paper industry. You will, of course, remember that that was the principal purpose for which this organization was formed.

"The directors early in the history of this organization realized that without sufficient cash balance and other money coming in continually from members, it would be impossible for us to do anything, so they instructed the officers of this Association to bend every effort to increase the membership rather than to undertake any active part in co-operating with the American Paper and Pulp Association, and that has been almost our sole effort during this year.

"As you undoubtedly know, this organization is a going concern and its membership, comprising as it does some of the largest supply and equipment houses in the country, is capable of doing many things promptly and effectively. We are therefore asking the members of the American paper industry to call upon us for any assistance which we may be able to render, taking into account the facilities of our member companies aside from anything we can do at the headquarters of the Association itself. We are operating at a minimum of expense and, with the natural growth in membership which we hope to see during the ensuing year, we expect to have in hand sufficient funds to undertake many projects which up to the present we have not been able to handle with our limited resources.

"It will be the constant effort of this Association to enroll as many new members as possible, at the same time keeping up the interest of our present membership so that through a united, vigorous and co-operative spirit, we will be of real assistance to the American paper industry. We all realize that in helping the industry to which we sell goods, we are in turn stimulating our own business."

Norman W. Wilson Promises Co-operation

Norman W. Wilson expressed for himself and the executive committee of the American Paper and Pulp Association his appreciation of the work that the Supply and Equipment Association is doing and the platform on which it stands.

"Dr. Baker and I," he said, "together with the other members of the executive committee, and I think it goes for the entire Association to the extent that the membership at large is informed of the situation, welcome most sincerely the work that you are doing and the platform upon which you are going. . . . If there is one thing that Dr. Baker and I want you to know, it is that we cordially and sincerely welcome the opportunity to work with you, and if we do not come up to the

scratch at any time in the future, the thing we want above all is that you tell us about it at the proper time in the proper way, and we would like to have the privilege of working that way with you."

Charles A. Gordon Speaks for Oxford Paper Co.

After thanking Mr. Wilson for the cordial good wishes which he had extended, Chairman Wilkinson called on Charles A. Gordon, vice-president of the Oxford Paper Company, to address the gathering.

Mr. Gordon said that he could add little to what Mr. Wilson had said. Mr. Wilson had told how the American Paper and Pulp Association welcomed the support of the Supply and Equipment Association, and as far as the Oxford Paper Company was concerned, he could assure them that this firm was in hearty accord.

Continuing, he said: "There is one thing we should keep in mind, and that is that our interests are really mutual, and while there may not be anything just at this minute that might be dangerous to the paper industry, still there are such things always coming up. That is when we want to be ready and all together and all united."

Address of Dr. Baker

Dr. Hugh P. Baker, executive secretary of the American Pulp and Paper Association, was then introduced and spoke in part as follows:

"In talking some of our problems with Mr. Wilkinson, we have both come to see that we have a very common ground, that there are many ways in which we could work together more advantageously than has been possible in the past.

"May I point out two or three of those problems upon which I think we could work together, in which I think you could help us tremendously and possibly we could reciprocate and be of assistance to you.

"I refer to the competition which we are facing in this country and abroad and the necessity for our finding an outlet for our commodities. The problem is always before us and before every manufacturer. We have had some tendencies towards overproduction. As an association, we are very careful about talking overproduction because of anti-trust legislation, even though overproduction—sometimes the shadow comes as a fact—should form a common-sense standpoint to be talked among manufacturers, yet we would not for a moment even give the impression that in discussing this matter of overproduction, we are thinking of restricting production.

What Trade Associations Can Not Do.—"Under the anti-trust laws, there are three things which trade associations are forbidden to do. We are always cognizant of these forbidden things and we are careful at all times to so guide our activities that there will be not even the suggestion of our overstepping the line. One thing we cannot do is to agree to restrict production. Another is that we cannot agree as to price, and finally that we cannot divide territory in the distribution of our commodities.

Finding a Market for Paper.—"The matter of finding a market for the distribution of our commodity is an exceedingly important one. For some reason or another, the paper industry has been a bit slow in considering the problem of the development of a foreign market. For years the American manufacturer felt that he had all the market he wanted at home, that he understood his home problems and that he could turn his back on the rest of the world and get along very nicely and we shrugged our shoulders and let the Germans and the English and the French occupy the South American and Far Eastern markets.

"However, conditions are changing. The war has wrought very great changes in our economic status and there is no question but that we have got to face the problem of widening our market and serving the world rather than the United States alone.

"At the present time we are selling about two million dollars worth of paper and paper goods monthly in foreign markets. In my opinion, there is no reason why we should not double that without any very large expense in the way of development. However, that has got to come about as a result of concerted action and it is difficult always to get concerted action in the solution of a problem such as the development of foreign markets, which, after all, some of our people think very far away from them. You, of course, are interested in this question of the growth of our industry, you are vitally interested, and I am not sure but what you could give us assistance in the study of the problem of increasing the uses of paper—I know you can help us there—and in solving the problems of foreign markets.

Research in the Paper Industry.—"I think you could be very helpful to us in the furtherance of research in the paper industry. In fact, I am not sure but what that is one of the more important things before this group. If the manufacturer of machinery and equipment and supplies would take hold of this question of research, of developing new uses of paper, you would be increasing your own business and increasing ours. It would seem that money could be spent very advantageously in the furtherance of research directly on the part of your own members or through the supplying of funds to some of the government laboratories, or to the research departments of some of our universities in such a way that certain specific problems could be taken hold of.

Statistical Reports.—"There is another piece of work that might be done to very great advantage by the larger paper industry, and that is the supplying of accurate and complete statistical reports for the entire industry, and when I say the entire industry, I include all the manufacturers and all other groups of the industry.

"I believe that no industry today can afford to neglect consideration of the public in furthering industrial development. We must have the public with us.

Question of Pulpwood Supply.—"In 1920 we formed a Woodlands Section to study the question of the pulpwood supply and the operation of forest lands and so forth. We were surprised to find that there was really no accurate information, no accurate statistics being given out regularly, for instance, as to the production of pulpwood.

"The Bureau of Census and the United States Forest Service were getting out figures, but they were always late and comparatively of little value, being of historical interest only.

"We began collection of statistics to put a picture before the industry as to the pulpwood situation. We wanted very much to put a forester into the field to study some of the exceedingly important questions as to the present supply of pulpwood in the several paper-making districts and how we may make our forest lands give us the wood we need. We took this problem to Mr. Wilkinson, or rather he came to us, and offered your assistance and we said that we would welcome very much indeed any help that you could give, and you did give substantial help. It was your contribution in part that made it possible for us to take on a forester, and this forester is now spending two months and a half in the Lake States studying the pulpwood situation."

Dr. Baker then spoke of traffic problems and the possibility of assisting in these matters through combined co-operation. The subject of credit bureaus was also touched upon and the belief expressed that such a service could be extended with economy and effectiveness. In closing his address to the Supply and Equipment Association, he remarked as follows:

"We are very keenly appreciative of the assistance which you have already given us, and we want you to feel that we are with you in what you are proposing to do, and want you to feel that you are a very definite and very important part of this great big paper industry of which we are all a part. There is a great field of work before you, and beginning with this group right here you can assist us all in working out the common problems of the entire industry."

The L. H. Gilmer Company, of Philadelphia, manufacturers of fan belts, automobile upholstery materials and webbing products, have added to their line an all-cotton packing made especially for use with low-pressure steam for sealing places where the contact is broken and restored repeatedly, as when a lid is opened and closed against the packing. It is claimed for this packing that it retains its elasticity and resiliency for an unusually long time under such service. This packing is free from all coloring matter or mineral substances that might run and discolor or otherwise contaminate steam or liquids coming in contact with the packing.

Newsprint Manufacturers Meet

Get First-Hand Information on Conditions in Europe Affecting the Paper Industry

MANY prominent manufacturers of newsprint paper assembled at the Hotel Commodore, New York, on Wednesday, October 21, for the fall meeting of the News Print Service Bureau, at which various subjects of immediate interest to the firms in membership were discussed.

Recent developments in the manufacture and distribution of Canadian and American newsprint paper were described in a report by R. S. Kellogg, secretary, who used charts and graphs to illustrate his subject.

Increased Production of Newsprint

The production of newsprint paper during the first nine months of 1925 showed an increase of 10 per cent for Canada and 2 per cent for the United States, as compared with the corresponding period of 1924, but the total net increase was stated as 6 per cent. Production in the United States to the end of September, 1925, was 1,124,000 tons, and for Canada 1,113,000 tons, a total of 2,237,000, as against 2,117,000 tons for the same period of 1924.

In 1924 the total production of newsprint paper amounted to 2,824,000 tons. Secretary Kellogg placed the probable output for 1925 at 3,000,000 tons.

A falling off in imports of newsprint paper was noted, overseas shipments for the first nine months of 1925 being only 108,000 tons; imports for the corresponding period of 1924 amounted to 117,000 tons.

More Paper Used

More paper was used by publishers in August, 1925, than in August, 1924, the figures showing an increase of 15,000 tons, and 20,000 tons more than in August, 1923. The consumption continues to increase, while stocks in publishers' hands are lower than usual.

Both newspaper and periodical advertising was heavier this year than last year, the increase over 1924 for nine months in newspaper advertising being 3 per cent, and for periodical advertising over a ten-month period, 2 per cent. The number of newspaper pages printed of over 100,000 circulation remained stationary at 28 daily, but Sunday issues were increased to 109 pages for 1925, as compared with 105 pages for 1924.

New Machines Added

Of considerable interest was a statement made by Mr. Kellogg concerning new machines installed in 1925 and the number scheduled for construction in 1926. At the close of 1925, thirteen new machines will be in operation in Canadian and United States mills, with a rated capacity of 1,200 tons. Six machines with capacity of 635 tons are definitely scheduled for 1926, and other plans are under way, he said.

Other reports submitted at the morning sitting included one on costs and operations by Louis Armstrong of the Laurentide Company, and another on Conditions on the Pacific Coast by Louis Bloch, of the Crown Willamette Paper Company. Mr. Bloch presided, both at the business meeting and at the luncheon which followed in the afternoon.

Review of European Situation

A well considered and altogether admirable review of the European situation was presented by Alan G. Goldsmith, of the Geo. H. Mead Company, at a luncheon served in the Tavern Room of the Commodore at the close of the business meeting. He was introduced by President Bloch, who improved the opportunity to say a word for a larger attendance of members at the business sessions. He touched on the benefits that resulted from the contact of members with each other and commented on the greater numbers that were attracted by the luncheon.

Basis of European Competition

European competition, the pressure of European competition, and the production of this particular pressure, were discussed by Mr. Goldsmith, who had only recently completed a study of economic and business conditions in Europe as affecting the pulp and paper industry of the United States.

It will be recalled that at last year's meeting of the News Print Service Bureau, Secretary Kellogg, in discussing the significance of increased exports of paper from Germany in 1923, as contrasted with a known decrease in the home use of paper in Germany owing to the pressure of economic conditions, said that when Germany recovered from her depression she was bound to use a great deal more of her home production of paper than she had been doing for years previously, and hence there would be less pressure to export paper in competition with the United States.

German Production Governed by Domestic Demand

Similarly, the burden of Mr. Goldsmith's address was that if Germany is in a position to consume more paper by reason of more prosperous conditions, the pressure will not exist on our markets as it did previously. Mr. Goldsmith quoted the director of the German newsprint paper cartel as saying:

"We are not going to ship over to you the amount of newsprint that we have been shipping. I have cut my contracts 35 per cent; I have not yet been able to live up to those contracts.

"Effective July 1, shipments to the United States will probably be decreased, for the very simple reason that our German production is based primarily on the domestic market, and when the domestic market demands that I ship them more paper, I will have to cut down my foreign paper."

Germany's Industrial Power

Germany and Russia were named as the countries of greatest present day interest to all industries. He said that there had been a tremendous rise in Germany's industrial power. There was a fear that with Germany industrially powerful, she would become a menace to other countries, but the situation, according to Mr. Goldsmith, was just the reverse.

The worse off Germany was financially and economically, he said, the greater was the pressure from German competition. The reason for this was obvious. When the home consumption of paper was lowered, the mills had to find an outlet for their production. German production of paper was primarily based on home consumption and the United States market was a market of last resort, so far as paper was concerned. Basically, it was to the advantage of United States papermakers to have a prosperous Germany, because in prosperous circumstances Germany would consume its own products, the excess being comparatively small. In 1922, German consumption of all grades of paper was just 50 per cent of prewar. In 1925, it would be equivalent to prewar consumption.

Germany, Mr. Goldsmith said, was today on a sounder financial foundation and on a sounder industrial footing than ever before, and this sound financial basis meant sound competition.

Scandinavian Conditions

The situation in the Scandinavian countries was quite different. Consumption in Sweden and Norway was based principally on export; the rest of the consumption was small. In Norway, financial stabilization is going on and affecting industry very seriously. The Swedes were at a decided advantage as compared with the Norwegians on account of the stability of Swedish exchange and the depreciation of Norwegian money. The Norwegians could undersell the Swedes as a consequence of the low rate of exchange for the Norwegian dollar, but when, after labor contracts had been signed, the Norwegian dollar went from seven to five to the dollar, it meant that their labor and wood cost was 1.4, say, compared with a price of 1 for the finished product. The rise in Norwegian exchange had made the industrial possibilities for next year rather dark.

The Norwegians, Mr. Goldsmith said, were getting the reper-

cussion of the happy days when they could undersell on account of a falling exchange. The Swedish producer is now at an advantage compared with the Norwegian, though he complained at one time because his government brought back the parity of the national currency.

British Conditions

Conditions in Great Britain are not quite so bad as they have been pictured of late. Mr. Goldsmith said there was a considerable inducement for the British industrialist to make a cry about hard times, and he mentioned reduced taxation and the coal subsidy as factors. There was a possibility of other industries being subsidized.

British consumption of paper was stated to be 50 per cent more than it was four years ago. It was supplied principally from Europe, with less pressure on the American market.

British consumption in certain essential commodities was still maintaining itself, and so long as there must be something to pay for these commodities, their production, although not up to prewar basis, was still going on at such a rate as to enable Great Britain to keep herself above water. Unemployment in Great Britain is still great, but this existed before the world war.

Russian Competition Impossible

Mr. Goldsmith made an interesting reference to the Russian situation. It had been thought that with Russia's great resources, its wood reserves and other natural advantages, a development of Russia would bring with it tremendously increased competition in the pulp and paper industry. As a matter of fact it would be just the reverse, said he. Russian timber supplies are hard to reach, native transportation having broken down completely.

Mr. Goldsmith was of opinion that if Russia was reorganized politically at once, it would simply mean increased consumption in Russia for pulp and paper products, far in excess of any construction that they could put up to keep pace with it. It was his estimate that for twenty-five, or even fifty years, Russia's consumption of pulp and paper would exceed her possibilities for production.

Origin of a Swedish Firm

The origin of a great swedish firm of newsprint paper manufacturers was interestingly described by Mr. Goldsmith. Stora Kopparbergs Bergslags Aktiebolag, of Stockholm, with mills at Borlänge and Skatskär, is said to be the oldest lumber concern in existence, having been established in 1225. It was originally a copper company, as its name implies. When the copper mine became exhausted, the company bought resources of iron and steel. When the newer steel processes displaced charcoal iron, they turned to their forest reserves, put in sawmills and later turned to the manufacture of pulp and paper, while still engaged in making various metals. The history of the world would have been changed if Stora Kopparberg had not financed Gustavus Adolphus's campaign in the Thirty-years War (A. D. 1618 to 1648).

In bringing his address to a close, Mr. Goldsmith noted a tendency among the larger Swedish newsprint mills to make direct sales to consumers and not through agents. He also left this thought with his circle of interested listeners:

"We are not going to reduce pressure from foreign competition over a long period of time by generally making it difficult for European countries to do business.

"A prosperous Europe means less pressure on our markets than with misery conditions in Europe."

Short talks were made by Magnus W. Alexander, Percy B. Wilson and by Colonel Roth of the Harvard Economic Service.

The American Engineering Company of Philadelphia, manufacturer of Taylor Stokers, Lo-Hed electric hoists and other machinery, announces that its interests in Canada have been taken over by The Affiliated Engineering Companies, Ltd., with headquarters in the Southam Building, Montreal. This company has been formed by the merger of The Taylor Stoker Company, Ltd., of Montreal, and The Cleaton Company (Canada), Ltd. Mr. M. Alpern, President of The American Engineering Company, is chairman of the board of the new company and Mr. F. S. B. Heward is president.

Meeting of New England Superintendents

To the Accompaniment of Earthquakes and Blizzards, Northeastern Division Meets at Groveton, N. H.

MEMBERS of the Northeastern Division of the American Pulp and Paper Mill Superintendents' Association who journeyed to Groveton, N. H., on Saturday, October 10, for the fall meeting, had some unusual experiences. The natives of New Hampshire may not have been perturbed, as they are a hardy lot, but there were superintendents and visitors there from Massachusetts, Maine, New York and Vermont who were unused to the excitement of earthquakes and blizzards. Soon after they began to arrive, an earthquake shook the central and eastern part of the State and did considerable damage, chimneys being overthrown and window glass broken, with goods shaken from the shelves of stores. Snow began to fall during the night and continued all next day. The wind blew a gale, assuming at times the proportions of a western blizzard, so that the roads were rendered nearly impassable with snow and fallen trees. Victor E. Fishburn, general manager of the Groveton Paper Company, who was chairman of the committee on arrangements for the meeting, narrowly escaped death as a large tree crashed to earth near the spot where he was standing and brought down with it an electric wire which fell across his arm. There were no casualties, however, and beyond the abandonment of a proposed trip to Gilman, Vt., for an inspection of the Gilman Paper Company plant and a pleasure trip for the ladies to Mount Prospect, the full program of meeting was carried out to the satisfaction of all. It says much for the interest taken in association work by the mill superintendents in the northeastern part of New England that an attendance of sixty-one persons was obtained, four less than the reservations provided.

Headquarters for the meeting were established at the Eagle Hotel, Groveton, where a reception was held prior to an inspection of the Groveton Paper Company mills. While the men were taken through all departments of the pulp and paper plant, the ladies played cards in the parlor of the Eagle Hotel. The return to the hotel was made shortly after 12 o'clock noon, when all sat down to a well-served luncheon, the Eagle Hotel being noted throughout the State for the excellence of its cuisine. Luncheon over, the members walked or drove through the snow to the Parish Hall of Groveton for a business meeting which lasted nearly four hours, adjournment being taken at 5:15 o'clock to enable the members to make the trip to Lancaster for the banquet in the evening.

New Officers Chosen

Chairman W. D. Sommerville opened the meeting by asking Secretary C. A. Brautlecht to read the minutes of the meeting held at South Brewer, Me., last June, which will be found reported fully on page 608 of the July issue of THE PAPER INDUSTRY. He then appointed a nominating committee consisting of W. S. Haley, H. J. Desmond and Harry Grant to propose names for officers to serve during the ensuing year. While the committee was in session, Chairman Sommerville announced that literature descriptive of beater rolls of the corrugated type as made by A. S. Simonds-Dayton Company, Dayton, Ohio, had been received together with a supply of pen knives and these were passed around.

The nominating committee had returned by this time and presented the following list of nominations which received the approval of the meeting:

Chairman, Killey E. Terry, S. D. Warren Company, Cumberland Mills, Me.; first vice-chairman, Louis La Duke, Groveton Paper Company; second vice-chairman, Oscar B. Ingall, Pejepscot Paper Company, Jejepscot Mills, Me.; third vice-chairman, Victor E. Fishburn, Groveton Paper Company; secretary-treasurer, Herbert W. Stanley, Parker-Young Company, Lincoln, N. H.

Committee Thanked

W. D. Sommerville was asked to continue in the chair for the rest of the meeting, the newly elected chairman, Killey E. Terry, being absent on account of illness. Mr. Sommerville expressed the acknowledgments of the division to Victor E. Fishburn and his associates on the committee of arrangements for providing an interesting program and he also thanked Professor Brautlecht for his work as secretary during

the past year. He then announced that papers would be read by R. B. Adams, Charles A. Tifft and Charles Fuhrmeister, Jr. Before the reading of papers was taken up, it was moved to send a message of cheer and encouragement to Chairman-elect Terry, who is now at a hospital in Boston recovering from a serious operation.

For a Joint Meeting Next Spring

Discussion of a place for the spring meeting in 1926 was started by Mr. Fishburn, who said that a favorable sentiment prevailed for a joint meeting with the Connecticut Valley Division. As a member of the Connecticut Valley Division, Charles A. Tifft, of the Chemical Paper Manufacturing Company, Holyoke, Mass., assured the members that such a joint meeting would be welcomed by his association.

Secretary Brautlecht mentioned that Ben. T. Larrabee had expressed himself in favor of a joint meeting with the Connecticut Valley Division and would have been present to urge it except that he had to attend a meeting of the executive committee of the national association at Detroit, Ocober 11. He added that the dues of the northwestern division were 100 per cent paid up and that this was the first meeting since its organization which Mr. Larrabee had failed to attend.

It was finally voted to appoint a committee of three to confer with the officers of the Connecticut Valley Division about having a joint meeting with the northeastern division early next year. On this committee were appointed Messrs. Tifft, Fishburn and Larrabee.

Rubber Covered Press Rolls

The reading of papers was then taken up and R. B. Adams, technical superintendent of the Stowe & Woodward Company, Newton Upper Falls, Mass., gave some important details concerning the use of rubber covered rolls in the manufacture of paper.

Mr. Adams is unusually well informed on the technology of rubber as well as paper manufacture and he spoke as an authority on the subject. He first considered the object of using rubber for paper machine press rolls, which was to get the water out of the newly formed sheet of paper as rapidly as possible and to consolidate the surface of the paper without injuring it. Metal rolls are more efficient but their action was harsher on both paper and felts.

Points on Hardness and Density.—The proper degree of hardness was next considered. In modern news mills, hardness of rolls and its influence on the cost of taking out water had been especially studied. News machines afforded the best means of study because newsprint manufacturers were not interested in the production of a fine finish on the paper, what they sought being the cheap and efficient expression of water. As the result of tests, newsprint paper manufacturers were able to determine the pressure per square inch of "nip" area obtained with different pressures applied by the weights and to weigh accurately the water expressed or squeezed out.

It was possible to see how the water-removing ability of the roll was affected by different densities or hardnesses of rubber, and to note how this varies during the life of a given felt. Low at the start, there was an increase of water removal as the felt was broken in. Mr. Adams showed how the water-removing capacity increased a little every time the felt was washed, until a stage was reached when the amount removed grew less with the wearing out of the felt.

As the paper runs over a felt under a hard upper roll, the felt traveling over a rubber cushion, the total cushion is that of the rubber added to that of the felt. When the water is squeezed out it must have a chance to run off or it will go right back into the "nip." Accordingly, the wider the nip the more difficult it is for the water to get away.

The Lesson.—The lesson to be taken from the tests referred to, as explained by Mr. Adams, was that the weight or pressure applied by the upper roll should correspond with the density of the rubber covering of the lower roll. If it was desired to increase the amount of water removed, the roll should not only be pressed harder but the density should be greater to obviate undue widening of the nip. A wide nip causes a wave motion and the deeper it extends into the covering the greater is the constant stretching and contracting action on the surface, all of which has a tendency to put the surface of the covering in distress. If the wave motion is kept down to the small limits which go with a sharp nip, the rubber surface will stay in condition longer.

Ideal Condition.—The ideal condition is to use coverings in the different presses progressively harder, which requires that correspondingly increased pressure should be applied as the paper passes from one press to the other. An advantage of this method of applying increased pressure to rolls of progressively harder densities is that the paper becomes more consolidated and is able to stand such increasing pressures without injury to its surface. The condition of the paper surface at the first test calls for a soft roll, with a light or medium pressure.

In most mills the machines are of different weights and it might be impracticable to order a different density for every press as this would necessitate the use of too many spare rolls, but two densities can be used, one for first press and a harder density for the others. As the coverings age and become thinner from regrinding, the cushion wears away and acts as a harder covering, so that an old second press may become suitable for a third press and an old first press suitable for a second press.

The importance of regulating the density or hardness of the press rolls so that the first press will be soft, the second harder, and the third hardest, is that it costs ten times more to remove water at the dryers than it does at the presses. The proper density of press roll for a given type of paper was a question often asked, but difficult to answer.

Object of Crowning Rolls.—Mr. Adams explained the object of crowning a roll, which was to cause the roll to press the paper in such a way that it would emerge from the dryers uniformly dry across the sheet, as well as to correct any tendency to irregularity of drying in the rest of the machine. Superintendents ought to keep a record of the crown used under different conditions and so be in a position to order a crown exactly suited to their needs.

Excessive Crowning.—Mr. Adams said that his firm was sometimes asked to put on crowns which appeared excessive, but on questioning it developed that the crown specified was the one actually required. He gave examples. For a roll 28 in. by 24 in. the order was received for a crown .179 in. in diameter, where the firm considered that a crown of .090 in. was adequate. A crown of .179 in. meant that the diameter in the center would be almost $\frac{1}{8}$th in. larger than at the ends and the circumference in the center $\frac{1}{8}$th in. larger than the circumference at the ends, so it was evident that for every revolution of the roll there would be a slip somewhere in order to keep the center of the felt and the paper going at the same speed as the edges.

Good grinding condition should be available in every mill, Mr. Adams said. In addition to ready access to a grinder, facilities should be provided for the easy insertion and removal of rolls in the machine.

Mr. Adams touched on the difficulty of getting rubber and its high cost today. A year ago rubber could be bought for 17c a pound but it was not available now at less than 95c to $1. There is almost no stock of rubber on hand either in America or Europe.

How to Keep Rubber.—In the discussion which followed, Mr. Adams was severe in his criticism of the manner in which deckle straps were handled. These should not be kept in a box but taken out immediately after delivery and put in a place where they could be protected from heat and light—in a cold, moist, dark place preferably. Light and heat injure rubber while dampness and darkness preserve it. To prove this it only needed to cut a piece of rubber in two and put one piece on the roof of the mill and one in a shaded wood to see what the result would be.

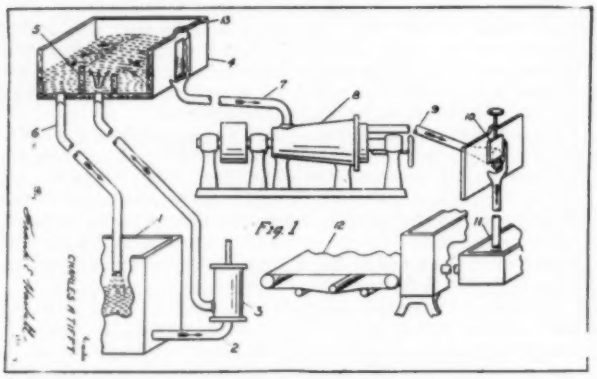
Value of the Densimeter.—Chairman Sommerville inquired as to the value of the densimeter, an instrument of Mr. Adams's own invention. Mr. Adams said the densimeter was a convenient instrument which, unlike the plastometer, could be carried conveniently in the pocket. A plastometer was a large laboratory instrument which could not be easily carried about for use. The densimeter gave reasonably correct plastometer values.

Meaning of Plastometer Degrees.—Edward J. Gaynor, of the Scott Paper Company, asked a question in regard to the use of soft rubber rolls in making tissue paper, saying he had been

unable to get good results with a soft rubber covered roll. It turned out that he was really using a hard type of roll, one that had a plastometric reading of forty to fifty, and Mr. Adams explained that the softness or hardness of a rubber was determined by the extent to which a ball sank into the rubber mass. Thus 0 is as hard as glass; forty is medium hard, and sixty or seventy is softer. He said that rubber rolls never lose their shape and that The B. F. Goodrich Rubber Company, of Akron, Ohio, were pioneers in the manufacture and marketing of soft rolls for first presses and had been remarkably successful.

The Tifft Process

Following Mr. Adams, Charles A. Tifft, of the Chemical Paper Manufacturing Company, Holyoke, Mass., was introduced and described a process of delivering stock from the Jordan engine to the machine which has been patented by him under the name Tifft Process. He said that three-and-a-half years ago he had been experiencing great difficulty in obtaining uniform weights in making paper, the variation amounting sometimes to a pound and a half in a period of twenty



The Tifft Process

minutes. The Jordan engine was situated between the machine chest and paper machine with the regulating gate in the Jordan box on the inlet side of the Jordan.

Besides the difficulties encountered in holding uniform weights and pop tests, there were also the usual troubles encountered when operating an improperly filled Jordan. An excessive amount of water was being used and the knives being set too close were subject to frequent chipping.

The usual dam was used but it seemed impossible to hold a uniform quality of stock. With this dam the stock is apt to back up until suddenly it is released, flooding the wire. If the dam is made higher to fill the Jordan the flow of stock is irregular, and if the height is reduced all the disadvantages of a Jordan not properly filled are experienced. One explanation of this irregular flow is that the heavier point of the stock settles behind the dam until sufficient stock has accumulated to force it over.

It occurred to Mr. Tifft that if back pressure on the Jordan was the chief requisite, then if the gate were used at the fan pump box instead of at the Jordan box some improvement might be expected. He accordingly changed the construction of the gate so as to place it at the outlet side of the Jordan. This operates to fill the Jordan completely with stock and even allow a head of ten feet or more on the stock of the Jordan. The accompanying drawing shows just what the change involved. The gate formerly at 13 is now placed at 10.

Mr. Tifft said the result of the readjustment of the setting of the gate was not so slow to become effective on the paper-making machine, as in the former practice where a considerable amount of material accumulated between the gate and the machine.

Advantages of the Change.—Among the improvements effected by the rearrangement of gate as enumerated by Mr. Tifft were the following: The Jordan can be operated a year without the necessity of chipping; the resulting paper is stronger and more uniform; the Mullen test reading is increased by 10 or 15 per cent on light-weight bond or tissue paper, this being accomplished with a reduction of the time the stock spends in the beater by as high as 40 per cent.

An important advantage mentioned by Mr. Tifft was the elimination of stuff gate plugging. By the old method with the gate at 13 and little head behind it, it only required a small amount of uncleaned stock to stop entirely the flow in the Jordan, which would result in the paper web leaving the wire. This danger is eliminated with the gate at 10 instead of at 13, as any uncleared stock is completely hydrated before it reaches the gate.

Makes for Increased Hydration.—In reply to a question by Mr. Sommerville, Mr. Tifft said that his invention provided for increased hydration of the stock as the Jordan could be kept constantly filled. As to effects obtained in book paper manufacture he told W. H. Cape, of the S. D. Warren Company, that it had the effect of providing better formation and less of a coarse finish than an egg-shell finish; less beating was necessary and the finished paper is harder than with ordinary Jordanning.

Uses of the Oliver Filter

An excellent description of the operation of the Oliver filter as applied in pulp and paper manufacture was provided by the next speaker, Charles Fuhrmeister, Jr., of the Oliver Continuous Filter Company, New York, a newcomer at meetings of superintendents and technical men, who made a good impression.

Mr. Fuhrmeister said that in the last six years the use of the Oliver filter had been developed at six distinct points in the pulp mills, as (1) for lime and soda recovery; (2) brown stock washing—soda and kraft processes; (3) deckering or pre-thickening; (4) high density thickening; (5) bleached stock washing and (6) save-all.

He said that in the handling of lime mud, Oliver filters decreased by 50 per cent the amount of water needed for washing the lime mud after the causticizing process, while the soda losses in the discarded lime mud were reduced to less than one-quarter of 1 per cent Na_2O on the dry weight of mud.

In using Oliver filters as brown stock washers, the gravity of the black liquor is increased, or the evaporator load decreased 20 to 30 per cent. The caustic soda recovery is increased, because the loss of Na_2O is reduced to 8 lb. per ton of air-dry stock during washing and labor in the wash room is lessened, so that a saving of $1.25 to $2 a ton could be effected.

As a pre-thickener, the Oliver filter was capable of discharging stock of a density of 12 per cent without the aid of a vacuum, a barometric leg giving ample air displacement for this purpose.

New Uses.—When used in conjunction with high density bleaching systems, Olivers were capable, Mr. Fuhrmeister said, of thickening stock from 1 to 2 per cent a.d. densities to 30 per cent a.d., with the use of little power. The use of the filter for the removal of products of bleaching or excess bleach was effected by diluting the bleach stock to $\frac{1}{10}$ of 1 per cent to 1 per cent either with fresh water or the overflow of white water from the clay savers, thus working as a combined washer and save-all.

As a Save-All.—The use of the Oliver filter as a save-all was interestingly described. Installed on the machine floor, the casual attention of a machine tender is all that is required. When used on white waters it emits an effluent containing approximately $\frac{1}{10}$ of 1 lb. of fiber per 1,000 gals. without any power except that used to drive the save-all, providing a barometrical leg of 20 feet is available.

Mr. Fuhrmeister gave the names of a number of mills in which the Oliver filter is being operated for one or other of the purposes mentioned.

Remedying Dirty Water

There was no discussion following Mr. Fuhrmeister's talk, which was delivered extemporaneously in a clear and interesting fashion, but Mr. Gaynor of the Scott Paper Company asked if any of the members could suggest a method of overcoming a difficulty which his mill is having with water from the Delaware River, which is contaminated with many impurities and deposits pitch, oils and other dirt on the felts. Many remedies had been proposed and tried but without satisfactory results.

Charles A. Tifft told of a mill on the Connecticut River that had experienced similar trouble. It was situated on the third level of the river and the water taken in was often contaminat-

ed with pitch, tar, oils, dyes and other foreign matter. The chemist of their mill went to work with others and created a pond, just off the mill, which was connected to the mill by a system of piping. The water in the pond was treated with alum as a precipitant and this worked to entire satisfaction, all foreign matter being removed.

After an announcement concerning the cancelling of the trip to Gilman, Vt., which brought an assurance from Fred Kruse, superintendent, of the Gilman Paper Company, that members of the division would be welcomed at the mill at any time. The meeting was adjourned.

Banquet at Lancaster Inn

It was styled a banquet on the program but it partook more of the nature of a delightful family gathering to which the minister had been invited, this dinner of the Northeastern Division of the American Pulp and Paper Mill Superintendents' Association at Lancaster, N. H., on Saturday evening, October 10. The interior of the Lancaster Inn was cosy and comfortable in contrast with weather conditions on the outside where a blizzard raged. As Victor E. Fishburn, who acted as toastmaster said, in introducing the first speaker, after a really excellent meal had been disposed of, there was no trouble to find anything to talk about, for all could talk about the weather.

Mr. Fishburn knows his people and talked to them in fine manly fashion, with a touch of intimacy that was natural, for he has had years of experience in different departments of pulp and paper mills. He said that this was just a gathering of superintendents, "an overall crowd" and he commended the fine spirit which had prompted them to get together in such inclement weather for mutual benefit in the discussion of problems arising in mill work. There was need, he said, for a greater development of unselfishness and patriotism throughout the country and he deplored a certain lack of foresight among those responsible for forestry matters, saying that what the country needed was a reforestation program. This last remark received attention from Mr. Bullock when he got up to speak of the work of the Import Committee of the Paper Industry.

Witty Talk by a Clergyman

The Rev. A. R. Parshley, of Lancaster, was the first speaker and he soon had everybody laughing at his limericks and witty stories. Apropos to such a gathering, he gave the following:

"There was an old man from Madrid,
Who ate 60 eggs for a quid;
He was asked, ain't you faint?
And he said, no, I ain't,
But I don't feel so well as I did."

It was this same Bishop who on being taken on a visit of inspection to a sulphite pulp mill remarked that it was the only place where the higher it got the more it smelled like Hell.

Turning to more serious matters, he spoke a word for the trade associations of the country in which, he said, men had banded themselves together for the interchange of ideas and experiences. It was in the very nature of things that such intermingling of men would result in a higher standard of business ethics and that the life of the whole nation would be correspondingly improved.

What the Import Committee Is Doing

In introducing the next speaker, Mr. Fishburn remarked that since 1920 the paper industry of the United States had been faced with the keenest kind of competition, due in part to overproduction and to a considerable extent also to unfair practices of importers which made possible the entry of foreign papers misclassified and at undervaluations. He said that Warren B. Bullock would speak on the work of the Import Committee of the American Paper Industry.

Before discussing the subject assigned to him, Mr. Bullock touched on some observations that had been made earlier in the evening by the toastmaster. For four years, Mr. Bullock said, he thought he had told the world that America led the nations of the earth in reforestation, but this information had evidently not penetrated to New Hampshire.

Having relieved himself of the foregoing, Mr. Bullock gave a most interesting account of his contact with the customs service in efforts to fight unfair foreign competition. The Import Committee of the American Paper Industry had pursued the policy of proving that the Tariff Act of 1922 could be enforced to the advantage of domestic manufacturers of paper, and it was with a great deal of satisfaction that he reported the successful prosecution of many cases of unfair foreign competition involving dumping, undervaluation and misclassification. On a single day in New York, sixty-five separate cases of undervaluation and sixteen misclassification cases had been tried. The Import Committee had succeeded in preventing the importation of various special papers masquerading as newsprint paper and entitled to entry duty free as such. He enumerated poster, news liner, catalogue, half tone, hanging, railroad writing and rotogravure. The product of one Swedish newsprint mill had been embargoed until the manufacturer would consent to allow American government agents to inspect its books for customs purposes.

Importers have, however, made every effort to continue their operations as before, taking every possible advantage of law and customs procedure to bring in paper at as low a rate of duty as possible.

Mr. Bullock said that it was not the intention of the Import Committee to interfere with the legitimate international flow of commodities, but only to make certain that the United States tariff laws are complied with and the American manufacturers thereby given an equal opportunity to compete with foreign manufacturers in the American market. The Import Committee has proceeded at all times with the utmost care to initiate no case in which it could not present specific evidence of evasion of the law, and in every case which has been decided by the Board of General Appraisers the decision has been adverse to the importers, thus justifying the policy of the committee to proceed only in accordance with the facts.

During the progress of the dinner and at intervals between speaking the diners were treated to instrumental and other music by the local high school orchestra, and Charles Adams, of Groveton, sang songs to piano accompaniment which brought several encores.

Those Who Attended

The names of those who registered at the meeting and banquet of the Northeastern Division of the American Pulp and Paper Mill Superintendents' Association at Groveton, N. H., on Saturday, October 10, are as follows:

Charles A. Adams, Groveton, N. H.; R. B. Adams, Newton Upper Falls, Mass.

Dr. C. A. Brautlecht, Orono, Me.; E. Avery Bruce, Boston, Mass.; Warren B. Bullock, New York, N. Y.; John Bellows, Groveton, N. H.

W. H. Cape and Mrs. Cape, Cumberland Mills, Me.; A. Chilicott, Ashland, N. H.; Andrew C. Cloudman and Mrs. Cloudman, Cumberland Mills, Me.; F. Harold Cloudman and Mrs. Cloudman, Cumberland Mills, Me.

H. J. Desmond, Shawmut, Me.; George Dougherty, Holyoke, Mass.; J. H. Dow, Belleville, N. J.; George H. Dresser, Boston, Mass.

Victor E. Fishburn and Mrs. Fishburn, Groveton, N. H.; Charles E. Flaherty, Boston, Mass.; Merton S. Fogerty, Groveton, N. H.; Charles Fuhrmeister Jr., New York, N. Y.

Edward J. Gaynor, Chester, Pa.; Gilbert H. Gleason and Mrs. Gleason, Boston, Mass.; H. W. Grant, Cumberland Mills, Me.

H. G. Hayes, Ashland, N. H.; J. J. Hayes, Gilman, Vt.

Thomas J. Keenan, THE PAPER INDUSTRY, New York, N. Y.

Louis La Duke and Mrs. La Duke, Groveton, N. H.; Henry Louden, Nutley, N. J.

R. K. McCluskey, New Haven, Conn.; S. P. Mac Leod and Mrs. Mac Leod, Groveton, N. H.; D. W. Marshall, Groveton, N. H.; Allen Maylo, Lancaster, N. H.

A. P. Nutter, Groveton, N. H.; L. C. Nutter, Groveton, N. H.

John J. O'Brien, Boston, Mass.; W. C. O'Neil, Groveton, N. H.

Rev. A. R. Parshley, Lancaster, N. H.; E. W. Peppard, Groveton, N. H.

R. Stewart Rowlett, Boston, Mass.

C. E. Savage, Groveton, N. H.; Ernest E. Smith, Holyoke, Mass.; W. D. Sommerville, South Brewer, Me.; C. W. Stewart, Groveton, N. H.; C. N. Swayne, Ashland, N. H.; L. M. Smith, East Angus, P. Q., Canada.

Joseph L. Temple and Mrs. Temple, Groveton, N. H.; E. L. Tewksbury, Newton Upper Falls, Mass.; L. A. Thompson, Holyoke, Mass.; Charles A. Tifft and Mrs. Tifft, Holyoke, Mass.

Edward J. Verow, Lincoln, Me.; F. A. Verrill and Mrs. Verrill, Cumberland Mills, Me.

New York Supers Have Session

Taken Through a Felt Mill and See Felts Made, Then Listen to Paper on White Water and Discuss Pitch on Wires

THE fall meeting of the Northern New York Division of the American Pulp and Paper Mill Superintendents' Association, which took place in Albany at the plant of the Albany Felt Company, on Saturday, October 31, was fairly well attended and accounted a successful meeting. Headquarters were at the Hotel Hampton, where a total of forty-three members registered between the hours of 8 and 9 o'clock in the morning. On assembling at the offices of the Albany Felt Company, at 1333 Broadway, some two miles distant, they were met by William Brydges, chairman; Fred J. Rooney, secretary, and H. E. Rockwood, vice chairman. Mr. Brydges outlined the program, which started with a trip of inspection through the Albany Felt Company's plant.

How Felts Are Made

This proved to be a great treat for most of the visitors. They were taken first to the raw wool department, passing on their way a Permutit water purifying plant of large dimensions. The various operations of washing and picking the wool were explained in detail by guides, the party being divided up into groups of five. After the wool is scoured, it is dried and picked. In the process of picking, the wool fibers are blended, depending on the kind of felt to be made, and are lubricated with a special vegetable oil while undergoing the picking process.

Teasle Used in Felt Making.—From the pickers the wool is blown to the carding machines and spinners. After the felts are woven, they are washed with neutral soap to remove all traces of the vegetable oil previously used in the lubricating process, and, after drying and stretching, they are treated with teasles to bring up the nap on the fabric. The teasle is a tough, spiny vegetable product resembling a section of a corn cob. It is really the flower head of a European plant known to botanists as **Dipsacus Follonum** and called fuller's thistle, fuller's weed or clothier's brush. It is imported in large quantities from France, being extensively used by wool spinners for raising a "nap" in cloth and textile fabrics like papermakers' felts.

Welcomed to Luncheon

After completing a tour of the plant, the members were led to the cafeteria of the felt mill, where they sat down to an excellent luncheon of hot roast turkey with fruit salad, pumpkin pie, coffee and cigars. F. D. Coudery, secretary of the Albany Felt Company, made a graceful welcoming speech in which he complimented the members of the Division on the fine appearance which they presented and assured them of the pleasure which it afforded the Company to act as hosts to the Association.

During the course of the repast, community songs were sung under the direction of a song leader to piano accompaniment and a group picture was taken of the assembled diners.

Business Meeting

The business meeting was to have started at 1:30 p. m. with an illustrated lecture describing the production of rosin and turpentine from trees, and the subsequent manufacture of rosin sizing, but as the room in which the meeting took place could not be darkened, this was deferred and used as an entertainment feature at the banquet in the evening.

Talk on White Water

The next item on the program was a paper on "White Water" by Harold M. Eastman, chemist of the Upson Company, Lockport, N. Y. In starting out, Mr. Eastman criticized the definition of white water as given in the textbooks of the Vocational Education Committee of the Paper Industry. He said it was not broad enough for the reason that it took no account of the effluents of cylinder and wet machines. The term originated in mills using clay as fillers. In some mills a distinction is made between white water and other return waters.

Two-Sidedness.—A large portion of the fine stock as it first falls on the Fourdrinier wire goes through as white water, and along with this, loading materials and tinting may be found. As the layer of fibers next to wires becomes dryer and forms a mat, it acts as a filter and there is less bleeding of color so that at the point where the stock is couched there may be little difference between the two sides of the sheet.

Types of Save-Alls.—The solid materials in any white water will consist of fibers, loading materials, sizing materials and extraneous matter or dirt. The first three cost money and should be saved. The last one is not wanted. Mr. Eastman described the common types of save-alls. Of the screen type, the outward flow save-alls have large capacity but their efficiency is low. The inward flow type, using a felt as filtering medium was good in principle, but more than one would be necessary to handle the white water from a mill of any size. Some of these machines are capable of drying the extracted solids, the web thus formed being blown from the wire. He said the homemade save-all, using inclined screens and flowing the white water over them was "quite efficient," a statement which is likely to be questioned by practical mill operators who seldom succeed in getting more than 40 per cent recovery from this type of save-all.

A Common Fault.—A fault common to all of the machines referred to is that the attempt is made to sieve material on a screen that is not usually much finer than the one through which the white water passed in the first instance. Mr. Eastman then considered the sedimentation or settling type of save-alls, which when equipped with slow moving sweeps or drags would, he said, do good work cheaply and efficiently. The addition of clarification agents was useful on occasions, but care must be used in the addition of anything of this nature. If lime is used to coagulate the alum left from sizing, only the necessary amount to obtain a quick settling sediment must be employed. The less alum extracted, the more there will be left for the next beater. But if the clarified white water is going to the river, all of the alum should be taken out.

Combination Best.—For a good over-all efficiency and low upkeep, a combination of the foregoing methods should be used. A good sized storage tank is a necessity in the case of using a closed system. This should be equipped with a slow moving agitator; the coarser portion settles and is pumped back into the system, while the clearer part is used for showers and whippers.

Cause of Odors and Slime.—Mr. Eastman advanced the supposition that cellulose in the white water breaks down into glucose and it is the fermentation of sugars of this kind and other organic substances that accounts for the objectionable odors that are noticed in cleaning out stock chests. The accumulation of these decomposition products also gives rise to slime.

The Chief Trouble-makers.—Organic matter from the pulp and acidity from the decomposition of alum are the two chief trouble-makers in Mr. Eastman's opinion. The development of acidity can be prevented by the use of less alum or the employment of a high alkaline size. It was a mistake to test the water leaving the mill. Leaky places should be searched for from the beater to couch roll, as the holes in the wire are not responsible for all of the fiber losses. If three pounds of stock per 1,000 gals. are lost, half of this can be prevented by tightening up the deckles and aprons, stopping leaky pipes, wasteful overflows and similar outlets.

Pop Bottle Test.—The use of the pop bottle to indicate the amount of solids in white water was recommended. Fill the bottle with white water and stand it upside down for an hour or so. If the neck fills up there is a leak somewhere.

Discussion

Discussion was invited and National Secretary Eminger called attention to the White Water Committee of the Superintendents' Association which he said would appreciate getting a copy of the paper.

The Problem Stated.—L. M. Booth, of the Booth Chemical Company, gave it as his opinion that the problem of recovering solids from white water did not differ in principle from that involved in the purification of water, it being a matter of separating a solid from a liquid, just as in water purification. In order to get the finer materials out, the use of alum was necessary. Paper manufacturers were fairly well committed to the closed system of white water recovery and it was surprising how little fresh water was needed in the manufacture of paper with a closed system in operation.

At the suggestion of Mr. Keenan, Secretary Eminger told

the meeting what it was hoped to accomplish by the White Water Committee of the National Association. This committee had only recently been organized and would soon send a questionnaire to mills and he made an earnest request to the superintendents present to insure that this questionnaire would receive the utmost attention and be returned promptly. The committee of the Superintendents' Association was to work in conjunction with a similar committee of T. A. P. P. I.

Stream Pollution.—The question of stream pollution and the agitation started by angling associations to stop paper mills from discharging waste water into streams was brought up. Mr. Roney instanced a paper mill in Ballston Spa, N. Y., which had been compelled to shut down and the firm go out of business because it was alleged that the effluent from the mill had killed the fish in Saratoga Lake. He also urged a prompt return of the questionnaire that would be sent out by the National Secretary.

Color Recovery.—J. W. Rice, of E. I. DuPont de Nemours & Company, discussed the problem of color recovery from waste water of paper mills. He said that his company was about to make an intensive study of the correct colors to use for obtaining clear back waters. The greatest loss of color was experienced in the working of bleached sulphite stock. It had been developed that colors suitable for clear back waters are not usually fast colors.

Work of Forestry College

Prof. Harry E. Weston, of the New York State College of Forestry, spoke of training in the industry with special reference to the work of the College. He said that one of his students had conducted a research into the pulping of hard wood by the DeVain process. In response to an inquiry, he explained that tuition in the College was free to citizens of New York State, but that $75 a semester was charged for non-residents. Accommodations at the College were somewhat restricted; forty to fifty men had matriculated, a number somewhat in excess of the accommodations, which were perhaps ample for forty.

Before passing the Question Box, Chairman Brydges appointed a nominating committee consisting of M. J. Argy, Homer E. Stafford and George K. Walker to select names for officers to serve during the ensuing year.

Influence of Weight of Couch Roll

Secretary Rooney brought up the question of heavy or light couch roll in the manufacture of tissue paper. Napoleon Rigabar, of the National Paper Products Company, Carthage, N. Y., had stated that a 1,200-lb. couch roll does not take out any more water and is harder on the life of the wires than a couch roll weighing 325 lb., the wire in the one case, lasting eighteen to nineteen days and in the other case twenty-four to twenty-five days, while the felts with a light couch roll last five and a half days longer. A big couch roll tends, he said, to dam the water back of the couch. More paper could be dried with the small couch roll than with the large one. The small couch roll could not be used without special stands made by the Ryther & Pringle Company. He said he ran the felts without a whipper and used no shower pipes and asked if there was a man present who operated a tissue machine without a whipper, but got no reply.

Cause and Prevention of Pitch

M. J. Argy asked if any information could be obtained about the cause of pitch formation on the wires. He believed it was usually blamed on the sulphite pulp, a remark which caused Nap. Rigabar to say that he did not believe there was such a thing as pitch formation on the wire.

Is This True?—It appeared to be the consensus that Canadian and American pulps were sources of pitch formation and that imported sulphite was free from pitch. This led to a general discussion of the causes and prevention of pitch and rosin spots on wires and felts. Excess of alkali in the sizing was blamed for pitch formation by one member and another said it was due to the use of unseasoned wood. In Germany, as well as in Sweden and Norway, it was the custom to dry the wood by stacking or other means before sending it to the chipper.

Use of Chemicals.—The addition of a little coagulant to the head water was prescribed by Mr. Booth as a corrective of pitch formation, while E. V. Kron, of Sweet Brothers, said he had never been bothered with pitch on the wires since he has used hyposulphite of soda in the proportion of ½ lb. to 1 lb. to the contents of a 1,000-lb. beater. Another member had used sodium triphosphate in the proportion of 2 or 3 lb. to a beaterful of stock.

Another member suggested that different woods required different strengths of acid. Three woods were used in his mill and each required a different acid.

The trouble was laid by another member to a neglect to use hot water for washing the pulp in the blowpit.

Mr. Johnstone, of the Papermakers' Chemical Company, said he had cooked wood in Canada from a tree 123 years old and the pulp never gave pitch trouble on the wire. He advocated a higher free acid content in the cooking liquor in order to prevent rosin trouble.

New Officers Elected

At this point the report of the Committee on Nominations was presented. After some discussion the committee was instructed to present three names for vice chairmen, instead of two as heretofore. The full list as presented was on motion elected by one affirmative ballot cast by the secretary. The names of the newly elected officers of the Northern New York Division are as follows:

Chairman, William Brydges; vice chairmen, Harry E. Rockwood, George K. Walker, A. G. Wightman; secretary-treasurer, Fred R. Rooney.

Votes of Thanks

Votes of thanks were passed to the local committee of arrangements and letters of appreciation were ordered sent to local firms who had assisted in entertaining the visitors. The companies named in this way included the Albany Felt Company, the Empire Size and Chemical Corporation, the Papermakers Chemical Company, the Upson Company and F. W. Roberts Company.

National Affairs

Before adjourning, National Secretary Eminger gave some details of the work of the executive committee at the recent Detroit meeting. A new division was being organized in Pennsylvania to take in the States of New Jersey, Pennsylvania and Delaware. The next annual meeting of the National Association will be held at Detroit on June 3, 4 and 5, 1926. He said he had been instructed to write to each of the chairmen of the various divisions of the Association urging them to ask their members to communicate with their Senators and Congressmen to support a sufficient appropriation for the operation of the Forest Products Laboratory at Madison, Wis. He said that the Association had 440 members on October 9, 75 per cent of whom had paid dues.

Banquet in the Evening

The banquet in the evening at the Hotel Hampton was a thoroughly enjoyable one. In addition to showing moving pictures of the operation of bleeding trees for turpentine and rosin, and the subsequent manufacture of rosin sizing as practiced by the Papermakers Chemical Company, a comedy reel was projected and the members listened to an inspiring address by State Senator William P. Byrne on the progress of invention throughout the ages.

Westinghouse Company Promotes Executives

Edward D. Kilburn, vice-president and general manager of the Westinghouse Electric International Company, and Walter S. Rugg, general sales manager of the Westinghouse Electric and Manufacturing Company, were named vice-presidents of the latter company at a recent meeting of the Board of directors in New York. At the same time Richard B. Mellon of Pittsburgh, president of the Mellon National Bank of that city and a brother of A. W. Mellon, Secretary of the United States Treasury, was elected a director of the company. Mr. Mellon will fill the vacancy caused by the death of William McConway, formerly president of the McConway & Torley Company.

Messrs. Rugg and Kilburn will take charge, respectively, of the engineering and sales activities according to announcement by Vice-President F. A. Merrick, general manager of the company.

Electrical Maintenance in Pulp and Paper Mills*

By W. W. CRONKHITE

General Electric Company

IT HAS been a hobby of mine for some time to interest pulp and paper mill managers and superintendents in some systematic record of the care and maintenance of their electrical equipment. This summer, while visiting at the St. Croix Paper Company, Woodland, Maine, I was agreeably surprised to find that Mr. H. L. Hayes, electrical engineer of the paper company, had put into effiect a splendid system which will appeal to all of you, because it is not an elaborate or complicated system, costs very little to install, yet it gives the engineer and the manager of the mill all the informaiton he wants to know. A similar system could be put in by you at little or no expense.

As the St. Croix system was working so nicely, I took the opportunity to discuss it with Mr. Hayes in some detail and most of this article is based on that system. Therefore, I take this opportunity to give the St. Croix Paper Company and Mr. Hayes credit for the ideas incorporated in this paper.

Maintenance work in a paper mill can be carried to extremes and made unduly expensive and yet not accomplish the desired results. Properly balanced, systematic maintenance is, therefore, necessary to obtain the desired economies.

Importance of Keeping Records

The first requirement of systematic maintenance is the keeping of proper records. Officials of some of the smaller mills may scoff at records as being unnecessary and unduly expensive. All paper mills that are electrified wholly or in part should and do need certain maintenance information and some record should be kept in order to get continuity of service. It stands to reason that a larger mill with several hundred thousands of dollars invested in electrical equipment will keep a more elaborate record than a smaller mill which is only partially electrified. It may be that in a smaller mill only a part of the time of one man would be required, whereas in a larger mill the entire time of two or more men might be required.

There is a great difference in opinion as to what information should be kept and the manner of keeping it and there may be in some mills, a tendency to keep too much data on one form.

Specification Card

The popular, and we believe efficient, form of record is to have two cards for each piece of apparatus. Let us consider a motor for instance, the first card which could be called a specification card should be made out when the motor is first purchased and delivered, containing information such as the following:

The number of the motor as assigned by the paper mill.

The date and where purchased, with the purchase price if possible.

Where and the date when the motor was first installed.

Complete nameplate rating, including serial number or model number of the motor.

Efficiency, power factor and heating guarantees.

Winding data, as coil specifications, connections, number of coils, etc.

Mechanical data, such as bearings, oil gauges, oil rings, shaft sizes, etc.

Miscellaneous data for brushes, collector rings, and a space for general remarks.

Maintenance and Service Card

A second card called Maintenance and Service card can be made out. On this card would be recorded from time to time the maintenance on this motor and any other information that is required by the electrical engineer or the manager of the mill.

Good maintenance work requires that parts should be stocked which are subject to wear or deterioration. Therefore, when a new piece of apparatus is purchased, it seems quite essential that those interested should determine with a great deal of care what spare parts should be purchased for this particular piece of apparatus. Spare bearings are, of course, a necessity, but in ordering bearings, it should be borne in mind that many motors have duplicate bearings and this information will appear on the "Specification" card if it is kept properly. A slow speed motor of a certain size may take the same bearing as a high speed motor with several times the horse-power rating. Of course, there is another condition that has to be noted on the Specification card, namely that of ten times bearings of different motors are of the same nominal size, but not interchangeable, due to different minor details. It is, therefore, necessary to have specific information about each part that it is desired to stock.

Spare Windings and Spare Motors

Spare windings and spare motors seem to be a necessity for continued operation. Sometimes a spare winding is preferable to a spare motor, particularly if the latter happens to be special or if there is only one of that particular type and speed used in the mill. Another deciding factor is the duty of the particular motor in question. Possibly that particular motor can be shut down for sufficient time to permit rewinding but could not remain down long enough to get a new winding from the factory. Under such conditions a spare winding would require less investment than a spare motor and is probably as effective.

On the other hand, if the motor is required for continuous operation, a spare winding would be useless because the duty would not allow a shut down of twenty-four hours for the rewinding job to be done. Under such conditions, spare motors must be provided. These details should be considered by the maintenance man in ordering spare parts and this information should be shown on the card.

If there are very many belt drives in the mill, spare motors are desirable because even if the spare is not of the same size and speed it can generally be used temporarily.

It is up to the maintenance man to decide the choice between windings and a spare motor. Each case should be studied and an estimate made of the effect of a breakdown and a plan made accordingly. In estimating the cost of a breakdown, do not forget that in a paper mill there is a sequence of operation so that oftentimes even a small breakdown may cause a great loss in production and, in such a case, the need of a spare equipment, that can be readily put into service, is obvious and essential.

It is well to bear in mind that a maintenance man's particular job is to avoid expense and breakdown rather than to make a world's record in getting the equipment back into service. A good maintenance crew will avoid the making of extensive repairs and save for the company thousands of dollars annually. .

Power Factor and Efficiency Test Record

From time to time it is important to make a power test on motors. Therefore, the efficiency and power factor guarantees are essential information to have on the cards. There is no economy in running motors underloaded, for in many cases the insulation deteriorates almost as fast with low temperature as it does with the temperature at which the motor is supposed to operate. Again, underload motors are a loss because of lower efficiency and lower power factor and probably through increased investment. There are many more motors in the paper mill industry running underloaded than there are running overloaded.

Power measuring instruments seem to be almost a necessity for proper maintenance. A complete set of instruments will pay for themselves in a short time by correcting the loads on motors. All motors in a mill should be tested from time to time as to load and an indication made on the card, for oftentimes it will be found that a 100 h.p. motor is carrying a 75 h.p. load and then there may be need for a 100 h.p. motor for certain work an an exchange of motors about the plant can be made with advantage. A 75 h.p. motor can be purchased and substituted for the 100 h.p. motor, not an uncommon occurrence because we know that there is a tendency to buy oversize motors rather than undersize.

High efficiency is desirable, of course, but continuity of operation is of supreme importance and never should be

*Paper read at a meeting of representatives of Canadian pulp and paper mills entertained by the Canadian General Electric Company, in Toronto, October 12 and 13, 1925.

sacrificed for the sake of increasing slightly the efficient operation of the motor. It is well to bear in mind that when a motor is down, its efficiency is zero and it only takes a few breakdowns during a year to offset any saving by increased efficiency. This is just a warning that the operation of the motors must be watched from time to time, especially where a motor is being shifted around in the mill doing odd jobs. Overload settings should be watched very carefully. There is a tendency on the part of the motorman to change these settings from time to time without the knowledge of the electrical engineer, and they should be checked by the maintenance crew from time to time.

The operating temperature of the motors is something that should be checked. For constant load, the motors may be loaded up to the guaranteed operating temperature. With variable load temperature is not so easy to control.

A pump motor might have a normal load of 75 h.p. but, for a short time each day, it might be taking 100 h.p. The overload relays in this case would have to be set to take care of the maximum load, and if the setting of the overload is left to the pump man, a burned out motor may be the result.

If the Maintenance Cards show the power factor and efficiency of each motor, it may be found that it is more economical to operate a larger motor at, say, three-quarters load than a smaller motor at full load, for frequently the efficiency curve will show that the larger motor is more efficient at part load than the smaller motor at full load. It is in cases like this that the card record will effect economies from time to time.

Economy of Standardization

Of course, it hardly seems necessary to dwell upon the importance of standardization, but there are many industrial plants today being operated with motors made by half a dozen different manufacturers. This policy necessitates, of course, the carrying of many extra parts of spare equipment.

It is rather difficult to make definite recommendations or to offer a definite program because the success of a maintenance scheme depends greatly on the men who are actually doing the work, but it is well to have on each shift a man whose duty it is to make periodic trips around to all the motors and making these men responsible for things that happen. In other words, their inspection should be such that they function to prevent trouble and shutdowns. This inspection would probably consist, among other things, of inspecting bearings to see if they were properly lubricated; the setting of the overloads to see if they had been changed by some irresponsible person; inspection of the contact fingers and the like for many motors are shut down due to trouble in the control devices.

The three principal causes of motor burnouts or shutdowns are probably due to defective insulation, bearings burning out, permitting the rotor to rub on the stator, overloads and low voltage.

A well-built motor, with ordinary care and attention, should last for twenty years and most of its troubles will be found to be due to outside sources.

Things for Inspection Crew to Watch

In many locations in a paper mill, it seems to be almost impossible to keep motor windings clean. By clean, we do not mean ordinary dust, as this in no way enters the windings unless it becomes so thick that it plugs the air ducts, reduces the air circulation and causes overheating. Oil probably is the cause for more breakdowns of insulation than any other cause, although dirty water and acid are, of course, undesirable.

The inspection crew should watch these points. Oil may come from the motor bearings or it may be thrown into the motor from belts, chains or gears. Water pipes should be watched for leaks, for the leak may not be dripping directly on the motor, but may be spattering on it from some other surface.

Blowing out with compressed air will do much to lengthen the life of motor windings but, of course, it is not entirely sufficient because periodically, motors should be painted with a good insulating varnish, using an air gun with 20 to 25 lbs. pressure. How often this should be done depends upon the location of the motor and the character of its service. Probably once a year or once in two years will be sufficient in the majority of cases.

After a few years in operation, the varnish on the windings will become "checked" and minute veins appear. When the motor is shut down, moisture accumulates and when the motor is started up and heats, this moisture is sucked into the insulation. Periodic painting will keep these minute cracks filled up and will add many years to the life of the motors.

Many mills make it a practice to take motors apart about every five years, but this all depends upon the service and location of the motors. There will be little or no trouble with motor bearings if they are kept properly filled with oil and kept free from grit. Most bearing troubles will come from outside sources such as overtight belts, endplay of shafting or pump rotors. From time to time millwrights, of course, will take up a belt and the motormen should be notified in all such cases so that they can watch the motor operation under the new conditions and see that the bearings are not heating unduly. Bearing oil had best be changed at least once a year.

Overloads on motors most generally come from outside sources and properly maintained overload protection will take care of this condition. It is for this reason that the motormen are expected to check up frequently the operation of the overload relays. There is a tendency about a paper mill when a motor is overloaded and blows a fuse or trips the overload relay to adjust the overload protection a little bit higher. This should only be done in an emergency and under special conditions and under the supervision of the maintenance man and if this condition continues to exist there is no justification in taking the chance of burning out the motor but the proper size of motors should be installed.

The Maintenance Card on each motor or piece of apparatus will give a complete story of the installation and will show the expense incurred. It will also give a check on how efficient the repair men are. Oftentimes the motormen, in inspecting a motor or starter, will fix up the job in a hurried manner and in a short time the same piece of apparatus will be giving trouble again. A card system or chart of motor and starter inspection if properly carried out will show this condition and provides a check on the work of the repair crew.

Motor Starter Troubles

In deciding on how frequently to inspect the motor starters, it will be well to take into consideration the duty. Some starters may be used only once a day, others may be placed in service where they are started two, three or a dozen times a day. However, all starters should be inspected at least once in six months. Generally where starting duty is severe, the magnetic switch type of starter will give less trouble than the hand starter. There seems to be a tendency to use magnetic or remote control starters where frequent starting is necessary for they do, to a great extent, eliminate the personal element in starting, as improperly started motors are a considerable source of trouble. Acid plants, blow pit rooms, and conveyors offer a field for magnetic types of starters which can be put in a room by themselves out of reach of acid fumes, dust, excessive vibration, etc.

The card form should be developed to suit the particular mill and then the motormen or inspectors should be required to be guided by this card. In this way any tendency on the part of the individual to slight certain parts will be eliminated, for he will be required to check each part and note it on the record as being O.K. or otherwise. When this report is made out, it should be sent to the man in charge of this work and the inspector or motorman knowing that someone is looking over these reports will be more apt to be thorough in his inspection.

A program should be devised so that this inspection will cover the entire plant in a systematic way. If there is a large number of motors, it probably means that a certain number will be inspected each week. The general apparatus around the plant such as transformers and station equipment should also be inspected periodically. In some mills this work is more or less haphazard and some apparatus, of course, gets too much attention and other apparatus is neglected altogether.

The card records will show the results of inspections and overhauling. If it is found that between inspections certain apparatus gives trouble, the inspections should be made more frequently and vice versa. The keeping of what would appear

as a minor record, such as blowing of fuses and overload relays will oftentimes enable those in charge to detect faults in the driven machines. If a certain motor continues to give trouble, it might be well to check the method of starting with a view to instructing those who start it so as to avoid further trouble. It is not uncommon to find men whose duty it is to start motors throughout a paper mill who have the idea that they are helping a starter by operating it slowly.

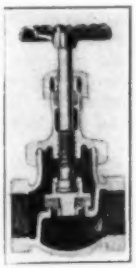
When a motor is purchased, the service record card starts with the number on the nameplate rating. When installed, the date, location and driven machine is recorded. Ampere and voltage readings are taken, also air gap, pulley size, belt data and overload protection setting. It sometimes happens that when a motor is installed, certain overload settings are made and later inspection shows that they have been changed. The card record will, therefore, give a check on what the original setting was so that a readjustment cannot be made without detection.

Service data should not be destroyed, for when a motor is moved to a new location, a note can be made to that effect and the record continued. This is not a very laborious record to keep, because most motors give practically no trouble and only two or three entries per motor may be made during a year's time.

It will also be found an advantage to furnish the men about the mill, who are not electricians, with simple written instructions regarding the operation of electrical equipment, but needless to say these instructions should be made as elementary as possible.

A New Line of Valves

A line of medium pressure globe and angle valves for 225 pounds working steam pressure is announced by Jenkins Bros., of New York City. They have been designed to fulfill a need for a valve with the renewable disc feature which will satisfactorily meet higher pressures than recommended for standard pattern valves. An important feature of these valves is the bonnet and union, made in one piece to screw on to the outside of the body threads. This construction gives added strength to the body end, the bonnet hexagons being made especially large, allow easy removal of the bonnet without distortion. Of special interest is the "ball joint," formed when the bonnet and body are screwed together. This is a new feature, designed by Jenkins Bros., which makes a very strong, though easily removable joint.



The valves are regularly fitted with the Jenkins Special No. 800 composition disc for high pressure work. A composition disc for a high pressure valve will appeal to those who recognize the superiority of such a disc over a metal-to-metal seat. No regrinding is necessary to insure a tight valve. The spindle is made of manganese bronze, with large, powerful threads which are all in contact when the valve is closed. The stuffing box is deep, with plenty of asbestos packing, which is compressed by means of a bronze follower. A ventilated hand wheel of malleable iron is used.

The valves are furnished, globe and angle, with screwed or flanged ends, in sizes of ¼ in. to 3 in.

Fast and Heavy Duty Stacker

A marked advance in the field of portable elevators is the Type PB Stacker, manufactured by Lewis-Shepard Company, Boston, Mass. For speed, smoothness of operating, and ruggedness, this worm-driven stacker is a distinct advancement.

The stacker operates from a power line with a 2½ h.p. motor and with a lifting speed of 40 feet per minute with a 1,000-pound load. It is built in 1,000 and 2,000-pound capacities.

It is designed on the worm-drive principle, the worm running in a bath of oil. There are no exposed gears. Operation, both up and down, is through a controller. The motor is of a high torque elevator type. The machine is fully equipped with safety stops, fuse box, 50 feet of heavy insulated cable, etc.

The Manufacture of Coated Printing Papers

By ELIE CAYLUS

Translated from Le Papier xxviii, 777-782, July, 1925, by A. Papineau-Couture

As I have specialized for many years in the manufacture of coated printing papers and am at present in charge of a mill making this grade, I shall try to interest the readers in the subject by giving a few practical indications on the manufacture of this paper.

Raw Materials—China Clay

China clay or kaolin is a mineral which is found in western France, in England and in the United States. Before use it must be washed and decanted to remove all impurities.

It is used in the coating mixes to give weight and covering power and to reduce the cost of production, as, owing to its filling qualities, it is cheaper to use than the other coating materials generally used.

A good china clay for coating should be very white, have a very fine-grained texture, be free from mica, and contain not over 10 to 12 per cent of water. The use of grayish or colored clay should be avoided, and also of blued clays, as they cannot give a good pinkish white or a fresh creamy white. Mica in the clay causes shiny specks in the paper.

About 12 to 15 per cent of adhesive (or size) is mixed with the clay in the coating mixture, the exact quantity varying somewhat with the grade of gelatin used.

Baryta White

Baryta white is obtained from barium sulphate. It is used for top coat, especially in coating photographic papers. It is a very fine white, and in conjunction with satin white it gives an extra-brilliant coat.

About 7 to 10 per cent of size is used in the coating mixture. When coating photographic papers the mixture must be more heavily sized. This is done by using a higher grade of gelatin so as to avoid the use of an excessive amount of size which would make the paper too brittle.

Blanc Fixe

There are two qualities of blanc fixe.

The ordinary grade is a by-product from the manufacture of hydrogen peroxide, while the higher grade consists of a mixture of 50 per cent of ordinary blanc fixe and 50 per cent of baryta white.

It enters in large proportions in coating mixtures for chromo and litho papers. The same proportion of size is used as for the other whites.

Satin White

This consists of a mixture of calcium sulphate and of hydrated alumina.

There are three grades of it on the market: the first, and cheapest, is strongly alkaline in reaction and is used with casein size; the second grade is not so strongly alkaline and is used with glue size; while the third, and best, known as "satinine," is used when the coat must be very thin. This last grade has a very high covering power, but it is expensive and is used only in the production of high-grade coated papers.

If an alkaline satin white is mixed with an acid glue, the mixture will be thick and pasty; but this can easily be avoided by neutralizing the acidity of the gelatin with ammonia immediately after the glue has been melted and before it is mixed with the pigment. Another way of overcoming the difficulty caused by a pasty mixture is to let it stand about twelve hours, when it will become normal again.

Satin white is used with about 7 to 10 per cent of size, according to the grade of glue used.

Gelatin

The gelatin used for coating paper is made from leather trimmings, hides, bones, etc. Before the Great War, it was used only for coating photographic papers, but since then it has been adopted by many manufacturers instead of casein and starch, which have become very expensive. Gelatin has the advantage over casein that it is practically odorless; when a casein-sized coated paper is in a damp atmosphere, it has a

strong and very disagreeable odor, while a gelatin-sized paper has practically no smell.

A good grade of gelatin should absorb three to four times its weight of water in 24 hours at a temperature of 140 C. It should be neutral and free from soaps and from fats, should have a viscosity of about 15 deg., as compared with water, and should jell at 20 deg. C.

Coating Mixtures

There are three kinds of coating mixtures, known as typo, litho and chromo. The preparation of these mixtures varies according to the quality of coat required. We shall briefly examine each one in turn.

Typo Coating Mixture

This generally consists of China clay and satin white, and sometimes a little blanc fixe is added to give more weight. The grade of materials used depends on the quality of coat required.

A solution of stearin and paraffin is added to the mixture to soften the coat and make it less brittle.

Litho Coating Mixture

Litho mixtures consist mainly of blanc fixe, and contain only about 25 per cent of china clay, and sometimes a small amount of satin white. Carnauba wax is added to make the coat less sensitive to the action of moisture, and formaldehyde is added to harden it.

Chromo Coating Mixtures

Generally, these are made entirely of blanc fixe, with the addition of a small amount of satin white if a brilliant coat is desired.

In cheap chromos a little clay is added. The coat need not be hard-sized. In order to obtain a waterproof coating, glucose solution is added in the mix. Glucose is used only in mixes sized with gelatin or with starch; it is not necessary to add it to casein-sized mixes, as the casein itself renders the coating waterproof.

Preparation of the Mix

In order to obtain good results, the mix should be sufficiently fluid, free from foam and from coagulated clots. To avoid coagulation a satin white which is but slightly alkaline should be used with a neutral gelatin, so that no reaction takes place between the two.

Foam frequently is due to the presence of fat or of soap in the gelatin or to insufficiency of size in the mix. When the mix is foamy, it should first be ascertained if it contains enough size, and if so an anti-foaming oil should be added. In the early days of paper coating, milk was used as an anti-foam.

If the mix is coagulated, it need only be allowed to stand for about twelve hours to complete the reaction.

Special care should be taken in working up the various ingredients together, for if they have not been properly worked up the mixture will be lumpy. If different grades of blanc fixe are used in the same mix, the hardest grade should be worked longer than the other.

In order to have a fine and perfectly smooth mix, it should be passed through two fine screens of different meshes.

Coating Stock

In order to have a good coated paper, a well filled, very white base, free from black specks and hard spots, should be selected.

When making thin coated papers, the coating stock should not be too "rattly," as such a paper would curl along the edges on the coating machine.

For heavy coated papers, on the other hand, the coating stock should be stiff and hard, for if it is too soft the coat is liable to peel off on the printing press.

Double-Coated Typo

The weight of the stock for this grade is generally taken to be approximately three-fifths of the total weight of the coated paper; but this rule is not always rigidly followed. For instance, if a 120-gramme per square meter coated paper is desired, a 70-gramme base with a 25-gramme coating on each side would probably be selected.

Single-Coated Litho

A single-coated sheet is generally used for lithographic work. It is practically impossible to make good litho coated paper very thin, the minimum permissible weight being about 120 grammes per square meter. Lighter litho papers are made; but it does not follow that they are satisfactory in use.

This grade is generally prepared from a fairly strong and slightly "rattly" stock. It is of great importance to pass the paper through the coating machine in the proper direction, as otherwise the printer will not be able to make his colors register properly, the paper expanding in the cross-machine direction.

For example, if a printer orders double-raisin, it is is well-known that he will feed it to his press with the meter edge foremost, and hence the base should be cut into 65-centimeter strips across the width of web of paper.

Chromo Papers

Coated chromo papers are used for color printing. As with litho papers, the direction of coating is of importance. A strong base should be used.

Mixing Room

The workman in charge of the mixing room should see that everything in this part of the mill is kept scrupulously clean and that mixers and tubs are properly washed after each mix. It is his duty to see that the various ingredients are properly worked up and that they are added to the mixers in the right order. He should particularly watch the temperature at which the gelatin solution is added to the mixer.

Another point which must be carefully watched is the straining of the mix through fine wire cloth, for it is this operation that determines the grain of the finished paper.

Coating Room

I consider that there should not be more than two coating machines in a room, as a larger number of machines prevents regular and even drying.

The machines should be driven by variable speed electric motors so as to be able to slow down the machines should variations in temperature cause irregularities in the drying.

When the machines are stopped, the brushes dry out, resulting in the formation of numerous small lumps on the brushes, which can mark the paper when the machine starts up again.

The average speed of the machine should be about 56 to 60 meters (about 185 to 200 feet) per minute, for at higher speeds mishaps are liable to happen.

A coating machine is generally equipped with seven brushes made either of silk or of soft hair. Recently, coating machine builders have begun to put eight brushes on the latest machines. The function of these brushes is to spread out and smooth the coat; and they require constant attention, for the vibration of the machine can put them out of adjustment with consequent marking of the coating.

On leaving the coating machine, the paper passes over a suction table equipped with a felt, so as to prevent the paper from "floating" on leaving the machine.

Drying Coated Paper

This is a very delicate operation. In order that the paper may dry properly, most of the water must be evaporated within the first hundred feet after it leaves the coating machine, so as to prevent the size from soaking into the base.

If the paper dries out too slowly the coat will have a tendency to peel off on the printing press.

There are numerous drying systems in use, and we shall merely give a few indications on two of the most widely used systems.

Vacuum Drying

A two-machine dryer is provided down its center with three sets of shafts having vanes, each set being adjustable independently of the others. Directly under these shafts, there are a number of openings in the floor of the dryer through which air is introduced into the dryer, and each opening can be opened or closed separately, so as to regulate the quantity of air which passes into the drying chamber. Along each side of the dryer are large sheet metal ducts with fans. At five-

meter intervals the ducts are provided with traps, which are level with the floor, so that the moisture may be drawn off when starting the fans.

Hot Air Drying

This system was introduced some twenty years ago or so. At first wooden sheathing was placed along each side of the dryer. In the sheathing were placed high-pressure steam coils around which air was circulated and then distributed by suitable ducts in the drying room, generally directly under the paper loops.

During the last few years this system has been somewhat modified by coating machine builders, who now provide a sheet metal apparatus called a "hot room," in which there is a radiator. A fan takes the hot air from this apparatus and blows through ducts against both faces of the paper.

Finishing Room

It is important to keep this part of the mill free from dust and moisture. The air should be dry to prevent condensation of moisture on the calender rolls, which would cause rust spots and prevent the paper from acquiring the desired brilliant finish. The room should be heated in winter to prevent the calenders from becoming too cold.

Calenders

There are three types of calenders used for coated papers:

1—The three-roll calender with two iron and one paper roll;

2—The seven-roll calender with four iron and three paper rolls;

3—The seven-roll calender with four iron and three cotton rolls.

These are the most widely used types of calenders. In some mills larger stacks are used, with twin paper rolls, so that the paper need only be given one pass, as with ordinary kinds of paper.

The three-roll calender is used to stretch and spread out the paper, that is, for giving the first pass. The seven-roll stack is used in all coating mills: after the paper has been given the first pass through the three-roll calender, it is given two more passes in the seven-roll machine.

The cotton-roll calender is used for the better grades, as it gives a splendid gloss; as the rolls are very hot it is used for finishing papers which have been previously dampened. The dampening is carried out on a separate machine.

Calenders are run at an average speed of 60 to 70 meters a minute. Higher speeds have both advantages and disadvantages, which must be compared in connection with the quality of the paper.

The iron rolls should be perfectly smooth, and it is essential to avoid the least rust spot. The paper rolls should be hard enough that the ordinary flaws which are to be expected in the paper passing through them will not mark them. They should be able to keep their smoothness and brilliancy, so that the paper will not lose on the second pass the gloss which it acquired by the first pass.

Friction calenders are used chiefly on fancy coated papers; and I would not recommend them for coated printing papers.

The pressure will depend to a considerable extent on the nature of the base. A soft base must not be calendered too heavily, for otherwise the impurities in the paper as well as the grain of the paper will show up through the coat, and the paper will be blackened. With a strong, hard base, on the other hand, it is quite permissible to exert considerable pressure if it is desired to obtain a high finish.

A new calender, or one which has been reground, should first be washed with water containing a little soda or borax. For the first washing soda is preferable.

A calender should be washed every day, after the day's work is over, with a dilute borax solution. This should be done while the machine is still hot, and the machine is then allowed to idle for a little with the pressure on. When starting up in the morning, the machine should be allowed to run for some time so as to warm up the rolls before beginning to pass the paper.

No pressure is applied on the first pass, the purpose of which is to spread out and smooth the paper. If the mill has no three-roll calender, the first pass can be given through two or three nips of a seven-roll machine.

On the first pass the calender man should brake the uncalendered roll to prevent the paper from creasing in the machine, and he should also brake the reel so as to obtain a good hard roll which will not slip at the next pass. On the last pass the rewound roll should be braked if a soft base was used so as to prevent the paper from wrinkling.

Normally, the pressure should be even across the whole width of the rolls. But if the roll to be calendered is larger at one end than at the other, the bigger end should be subjected to heavier pressure. In order to avoid possible damage to the rolls, the pressure should be relieved when there is a splice in the paper.

The paper should be allowed to stand for about 24 hours before calendering. A proper moisture content is about 7 per cent. If the paper is too dry it breaks and is very difficult to calender; while if it is too moist it wrinkles and blackens.

Cutting

Paper should be cut as soon as calendered, especially in winter. Coated paper should never be allowed to stand in a damp room after it has been calendered, as absorption of moisture would make it curl.

It is unnecessary to mention the different types of cutters, for they are practically all suitable. About 250 to 300 kilos of paper can be cut per hour, depending on its weight. After cutting the paper is laid on trucks with great care to avoid cracking it.

Sorting

The sorting of coated paper requires exceptional care, and the sorters should not overlook any defect such as folds, wrinkles, cracks, tears, undersize sheets, holes, dirt specks and hard spots. Hard spots are the worst defect from the standpoint of the printer, for they damage his plates and hold up production.

The sorted paper is then counted into reams, half-reams or even quarter-reams, according to its weight. It is advisable to place one or two sheets of broke on top and at the bottom of each package so as to protect the paper.

Packing

Different colored wrapping paper should be used for packing different grades of coated papers, selecting a wrapping that will protect the contents from dampness.

Finally, the packages should be placed in a perfectly dry storage.

I. P. to Increase Common Stock

The International Paper Company, according to announcement made a few days ago, plans to change its common stock to no par value and will make an offering of common at $50 a share. A directors' meeting was held recently at which it is said it was decided to ask stockholders to authorize an increase in common from the present $25,000,000 to $50,000,000, and stockholders probably will be permitted to subscribe to the new stock share for share. It is understood that the new stock will be placed on a $2 annual dividend basis by the payment of a quarterly dividend of 50 cents on August 15, 1926. It is stated that the offering will be underwritten without commission.

Need for additional capital for continuation of the company's vast expansion program now under way which, when completed, will provide for additional paper mills in Canada and participation in a merger of hydro-electric properties is seen as the reason for the company's new financing.

John S. Riegel Left $667,690

John S. Riegel, manufacturer of paper and paper bags, who died June 29, 1916, left an estate of $1,125,100 or, with deductions allowed, a net estate of $667,690, according to an appraisal filed several weeks ago. He gave one-fifth of the estate to his second wife, Mrs. Georgia E. Riegel, and left the remainder in trust to his children, John L. and Theodore Riegel, Mrs. Helen R. Oliver and Mrs. Marjorie R. Engalls.

He had insurance amounting to $112,080, but the bulk of the estate was in securities appraised at $924,261. The largest holdings were 1,072 shares of Warren Manufacturing Company, $133,026; 3,700 shares of Union Bag and Paper Company, $120,250; 400 shares of John S. Regel Company, $81,800, and $190,000 in bonds of the St. Maurice Paper Company of Canada.

New England News

November 1, 1925.

Successful Direct Mail Convention

Color. That is the development of paper manufacturing art which the Direct Mail Advertising Association Convention and Exposition, held at Boston, October 28 to 30 inclusive, showed in all its finesse. There is a widespread recognition of the need of special papers and colors for varying forms of Direct Mail Advertising. The booths of the Strathmore Paper Co., Worthy Paper Co., Hammermill Paper Co., Papermakers Advertising Club, which includes a score of the manufacturers of fine paper in the country; B. D. Rising Paper Co., Hampshire Paper Co., and others displayed to the fullest the delicate shades adapted to every varying form of Direct Mail work.

Incidentally the Direct Mail Advertising Convention and Exposition demonstrated the deep interest which the fine papermakers of western Massachusetts are taking in the problems of Direct Mail work. Famous book paper producers including such firms as S. D. Warren Co., Oxford Paper Co., Dill & Collins, Rex Paper Co., and others have been leaders in fostering the correct use of paper in Direct Mail Advertising, but it is now realized that the more expensive papers have just as important a rôle to play.

The Carter, Rice & Co. Corp., of Boston, in their exhibition of the Old Colony line of Direct Mailing Sets indicated the line of coöperation between merchant, converter and manufacturer that is conducive to sales results in this growing field. Old Colony mailing sets are made on B. D. Rising Paper Co. stock, converted by the Old Colony Envelope Co., and sold in this territory by Carter, Rice & Co. Incidentally all three booths of these companies were grouped together at the exposition. The same community of interest was noticed in the grouping of the Arthur E. Ham & Sons and Worthy Paper Co. booths, that of the S. D. Warren Co., and A. Storrs & Bement, and the Dill & Collins exhibits in their own booths, alongside their New England agents, the John Carter & Co.

One of the unique features of the exposition was a story of paper making history, together with pictures of modern paper manufacture in the mills of the Hampshire Paper Co., all shown by an automatic stereopticon which displayed words and pictures through illuminated opaque glass.

"Duo Text," the splendid new sheet of dual purpose paper put on the market about the first of September by the Standard Paper Manufacturing Co., was one of the features of the exhibit of that company. It is a paper combining the advantages of bond and coated book in one, serving for high-grade halftone and Direct Mail advertising generally on its inner side, and correspondence on the outer.

Direct Sales Bond of the Appleton Coated Paper Co., and exhibited by Knight, Allen & Clark, of Boston, was another timely feature which attracted much attention of those to whom the lessening of mailing costs and the combining of correspondence and Direct Advertising is a factor.

From the paper manufacturers' standpoint, a summary of the convention and exposition can best be epitomized by the word Coöperation. The days of paper manufacture when sizes, weights and colors and grades were turned out and the user compelled to accept the arbitrarily submitted lines, is gone. This convention proved that the paper manufacturers, as expressed by Mr. Gay of the American Writing Paper Co., are learning more about the needs of their customers each year, that the paper manufacturer frequently has more scientific knowledge on which to recommend the use of papers than the printer or advertiser himself; that the paper manufacturer is constantly developing a range of papers to meet every Direct Mail requirement.

Installation of powdered coal burning equipment in New England makes further progress with the announcement that the Nashua River Paper Co., of Pepperell, Mass., will install the unit system of the Fuller Lehigh Co., in their plant. The installation work will be done by engineers of the Fuller Lehigh Co. itself which has Boston offices in the New Chamber of Commerce Building, 80 Federal St., Boston. It is understood that the new system is to be installed for the present in the form of one 500 h. p. Stanley boiler, and if results are per predictions, the entire plant will be equipped with the powdered coal burners.

The Whitmore Mfg. Co., of Holyoke, Mass., has at last been sold to the Rosmarg Coated Paper Co. The Superior Court ordered the acceptance of the Rosmarg offer, which it is understood includes about $165,000, of which $15,000 is for materials and stock in process. Russell N. Davenport, receiver for the Whitmore Manufacturing Co., will continue to operate the plant until details regarding the transfer have been completed. It will probably be towards the end of December before the final papers confirming ownership are passed.

One of the most important bits of news among the converters was just announced in Boston. The Library Bureau of Cambridge, Mass., nationally known dispenser of record and filing systems, has been sold to James H. Rand, Jr., of Tonawanda, N. Y., president of the Rand Kardex Co. The Library Bureau has factories for the manufacture of paper products at Cambridge, Ilion, N. Y., Chicago, and England. It is said to be the third important consolidation in this field during recent months, the Index Visible Co., of New Haven, Conn., and the Add Index Co. having been taken over by the Rand Kardex Co.

Eastern Busy on Rayon Supply

It is said that the Eastern Manufacturing Company, of Bangor and South Brewer, Me., continues to hold its position as chief supplier of bleached sulphite pulp to the rapidly growing artificial silk trade. The Rayon manufacturers are taking over 50 per cent of all the pulp that Eastern sells in the open market. This outlet plus a modest amount of exporting to foreign Rayon consumers has been proving of great benefit to the company's operating position this past year.

In previous years, the Eastern Manufacturing Company has enjoyed a good business on its paper output which was considerably offset by only part time operations in the sulphite pulp department. During the past few months, however, with paper sales running substantially ahead of last year, the pulp department has actually been forced to buy some pulp in the outside market in order to take care of its heavy orders. The big paper business has followed an intensive advertising and sales campaign on Atlantic Bond.

The Champion Fiber Co., of Canton, N. C., for whom Mr. Stanbridge is New England agent, entertained a group of New England paper converters at and near their splendid plant in North Carolina recently. A special car left the South Station, Boston, Sunday, October 25th, with the New England converters aboard in charge of Mr. Stanbridge and arrived at Asheville on Tuesday at 1 p. m. The entire four-day stay consisted in sightseeing and inspections at the plants. There were no lengthy speeches to bore the visitors, it was entirely a tour arranged to show New England buyers the tremendous property, and possibilities for the future in this development.

Sixty-four Massachusetts and outside corporations have filed petitions at the State House, Boston, for abatement of State taxes since 1919. These include a number of paper companies, among which were the Scott Paper Co., of Pennsylvania, the Keith Paper Co., of Massachusetts, the former asking for an abatement of $726 and the latter for $28,476. However, a subsequent decision by the Massachusetts Supreme Court, unless overruled by the Federal Court, seems to preclude any actual recovery of these taxes as well as to bar the possibility of the feared double taxation.

Finnigan & Mahoney, Inc., of Worcester, Mass., waste paper dealers, have been incorporated under Massachusetts laws to carry on a general paper stock business in that city. The incorporators include: Thomas Finnigan, of Worcester, president; Arthur A. Dufresne, of Shrewsbury, treasurer; and John Connor, of Worcester, clerk.

The American Writing Paper Co. has paid its 1925 taxes to the city of Holyoke, the total being $193,347. It was not

INCREASED PRODUCTION

At Greatly Lower Cost

THE production records of the paper industry, as published from month to month furnish a convenient index, when comparisons are made, as to progress. But these figures do not tell the cost of production, the one vital factor that makes for either profit or loss.

Factors that enter into the cost of production, as studied by users of the NEW BELOIT FOURDRINIER, are the very essence of frugality. The three main features: Adjustable, Removable and Shakeable—are of BELOIT invention, and their operation has been so successful that a new era in paper-making has been created.

Pulp and Paper Production Statistics

The February production of paper in the United States as reported by identical mills to the American Paper and Pulp Association and cooperating organizations, showed a decrease of 8 per cent compared with January's production following a 7 per cent increase in January over December, according to the Association's Monthly Statistical Summary of Pulp and Paper Industry. All grades showed a decrease in production as compared with January.

The Summary is prepared by the American Paper and Pulp Association as the central organization of the paper industry, in cooperation with the Binders Board Manufacturers Association, Cover Paper Association, Converting Paper Mills Association, Wrapping Paper Manufacturers Association, Newsprint Service Bureau, Wrapping Paper Manufacturers Service Bureau and Writing Paper Manufacturers Association.

The figures for February for same mills as reported in January are:

Grade	Number of Mills	Production Net Tons	Shipments Net Tons	Stocks on Hand End of Month—Net Tons
News Print	65	115,805	114,027	25,883
Book	63	85,260	87,097	39,824
Paperboard	108	107,754	107,868	28,110
Wrapping	84	50,082	51,685	60,719
Bag	26	9,751	10,164	6,186
Fine	82	27,878	28,188	40,496
Tissue	45	11,648	11,657	10,923
Hanging	8	3,903	4,030	1,763
Felts	20	18,089	18,157	3,745
Other grades	63	19,910	20,430	13,627
Total all grades		448,080	454,303	231,276

In the matter of wire changes, the Removable feature has been instrumental in savings of 595 man hours yearly, besides a saving of 51 production hours and an increase in production of tons more of paper.

The new oil-tight, waterproof BELOIT bearing reduces power consumption and largely eliminates water cooling on press and calender boxes. Injurious heat and power waste is thus eliminated. The new BELOIT Shake insures a better formed sheet at higher speed.

For further records of savings, write for Bulletin No. 9

The NEW BELOIT FOURDRINIER

Beloit Iron Works — **Beloit, Wis., U.S.A.**

SINCE 1858 BUILDERS OF PAPER, BOARD MILL AND CONTAINER PLANT MACHINERY

many months since the company paid its overdue 1924 taxes, the money for which was raised on receivers' certificates. This year's taxes were paid under protest, according to S. L. Willson, president and receiver. The assessors of Holyoke give the American Writing Paper Co. a valuation of $8,406,000, which it is alleged is far too high in consideration of depreciation. The procedure in this case will be to hold a hearing before the Board of Assessors which, if not satisfactory to the complainant, can then be taken to the Superior Court.

A fire did some damage to the stock sheds of Hollingsworth & Vose Co., at East Walpole, Mass., on October 14.

J. O. Williams of Cardiff, Wales, interested in timberlands of Finland and Russia, and in the possibility of shipping pulpwood to the United States for use in American paper mills, particularly in Maine, New York and Pennsylvania, made a complete inspection of the discharging facilities at the port of Portland, Me., recently and commented very favorably afterwards. He declared that the Portland Woodhandling Co.'s facilities were among the best that he had seen at any port in the world. This discharging depot has been developed by the International Paper Co. and other Maine mills, who bring pulpwood from the maritime provinces by boat, discharging it at Portland for further shipment to the mills.

Rate Reparation Awarded to Merrimac

The I. C. C. has awarded reparation to the Merrimac Paper Co., of Lawrence, Mass., for illegal charges collected by the Boston & Maine R. R. on shipments of printing paper in carloads to Long Island City, N. Y. The Commission also granted the request of the Merrimac Paper Co. for just rates in the future to the same point.

The rate hitherto assessed has been the fifth-class tariff of 31 cents. It was contended that paper moves at sixth class nearly everywhere else in official classification territory. It was also pointed out that rates were actually lower to such points as Baltimore, Md., Pittsburgh, Rochester and Buffalo, considerably further distant, and that Windham, Me., ships to Long Island City via the B. & M. and N. Y. Central, at practically the same rate as Lawrence, although the former is 529 miles and the latter 339 miles. In the future it was ordered that rates must not exceed sixth class.

The American Tissue Mills, of Holyoke, Mass., have commenced construction on an addition to their plant, understood to be for more machinery and which will cost in the vicinity of $50,000.

New Research Men for Oxford Paper

The Oxford Paper Company has recently obtained the services of H. V. Breding and W. O. Hisey, in the research department. Mr. Breding is from the Royal Technical College, Copenhagen, Denmark. He was formerly employed in the laboratory of the Arlington (N. J.) plant of the E. I. Dupont de Nemours & Company.

Mr. Hisey is a junior member of the Technical Association and has had experience in several paper mills in the west. He spent last year at Syracuse as a student in the pulp and paper course of the New York State College of Forestry.

Ronald G. Macdonald, formerly connected with the research department of the Oxford Paper Co., is now on the editorial staff of Chemical and Metallurgical Engineering.

Joseph M. Lowe, president of the Falulah Paper Co., has requested permission from the city of Fitchburg to run a pipe line from the waste water at the city's sewage disposal works to his mill for washing stock. The water supply of the Nashua River has been very uncertain of late and Mr. Lowe believes that this supplementary supply would assure an adequate and continuous flow.

The Governor and Council of Maine have granted permission to the Fraser Companies, Ltd., to construct a pipe line for the transmission of liquid pulp over the International Bridge between Madawaska and Edmundston, N. B. It is understood that preliminary work on the new paper mill on the Maine side of the river have been started.

Northern New York News

November 1, 1925.

Racquette River Co, Entertains Dealers

A number of retail paper dealers were guests of the Racquette River Company at the company's club at Granshue, up the Racquette river the latter part of October during the deer hunting season.

Among those at the camp were: F. W. Power, Boston; A. M. Eaton and E. A. Eaton, Boston; J. C. Mallabiece, James Levens, James Capen, W. H. Holden, William A. Ebbetts, William E. Ebbetts, Edward Austin, all of New York; John Johnson and H. J. Severance, Buffalo; George Beggs and C. W. Hastings, of Rochester; A. J. Corning, of Baltimore; B. C. McCauley, of Cleveland; Robert Coy, of New Haven, Conn., and James Shurtleff, of Brockton, Mass.

I. P. to Take Over World Mills

There is a well authenticated report of the absorption by the International Paper Company of the paper mills owned by the Press Publishing Company, publishers of the New York World.

The Press Publishing Company operates mills at South Norwalk, Conn., with pulp obtained from St. George, N. B.; the Hyde Falls Pulp & Paper Company, at Chateaugay, N. Y., together with its pulp supply, and the Degrasse Paper Company and woodlands at and near Pyrites, N. Y. The company's investment in timber lands and newsprint mills amounts to several million dollars.

Whether the deal includes the paper mills and supply of the St. Louis Post-Dispatch, another Pulitzer property, has not been revealed. The World bought the Norwalk plant about five years ago from the St. George Paper Company.

Inquiry at the publication office of the New York World brought the information that negotiations for the purchase of one or two units of the Press Publishing Company's paper manufacturing properties had been in progress for about a year, but that nothing definite had yet developed in the negotiations.

William Briggs, an employee of the Beaver Falls paper mill, had three fingers of his left hand crushed while loading paper on a truck, necessitating partial amputation.

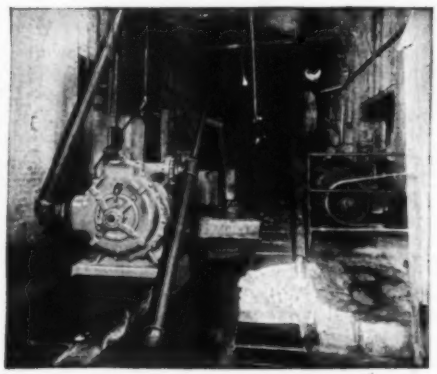
Smith Heads Paper Makers

W. R. Smith, of Kalamazoo, Mich., formerly of Brownville and Deferiet, has been elected president of the International Brotherhood of Paper Makers, defeating M. H. Parker, of Albany. Announcement of Mr. Smith's election was made by the board of canvassers, which has been making a count of the vote for the last week. Mr. Smith won out by about 200 votes and will assume office Jan. 1. The salary is $5,000 a year.

Mr. Smith started to learn the paper-making business at the age of 17 years in Brownville, in 1899. Later he was employed by other mills in Watertown and vicinity. In 1909 Mr. Smith was sent by the Bagley & Sewall Company of Watertown to England, where he spent fourteen months. Shortly after he returned to this country, he went to the plant of the International Paper Company at Niagara Falls, where he was about a year and was then made assistant to President Jeremiah T. Carey of the brotherhood. Mr. Smith has long been active in paper mill activities, serving as a member of the executive committee and as vice-president of the Brotherhood. For several years, he has been general organizer for the Brotherhood. In the election he belonged to the Carey faction. A tabulation of the vote shows that Smith and Parker broke about even in Northern New York, Smith getting his biggest vote in the Middle West and in Canada.

Archie Hook, of Chicago, was re-elected treasurer without opposition. M. J. Burns, of Albany, was re-elected secretary, defeating two rivals. David S. Larner, of Norwood, was re-elected auditor. Frank P. Barry, of Ballston Spa, was elected first vice-president; Arthur Huggins of Holyoke, second vice-president; George Schneider, of Appleton, Wis., third vice-

Steady suction saves wires



No. 6 Nash Hytor Vacuum Pump, in connection with suction rolls, King Mill Division, Allied Paper Mills, Kalamazoo, Mich.

Suction of the Nash Vacuum Pump is as steady and uniform one time as another, —there is no reciprocating action which results in a pulsating suction that causes the wires continually to vibrate. Consequently, life of the wires is materially lengthened.

Dewatering of the paper web is complete and efficient.

For a complete description of the Nash Pumps, their design, construction, and method of operation, write for our illustrated literature.

NASH ENGINEERING COMPANY

So. Norwalk Connecticut

New England Representative
Mr. G. H. Gleason, Nottingham Bldg., Copley Sq., Boston, Mass.

Western Representative
Mr. T. H. Savery, Jr., Room 1524 Republic Bldg., Chicago, Ill.

Nash Hytor

VACUUM PUMPS AND COMPRESSORS

The Black-Clawson Co.

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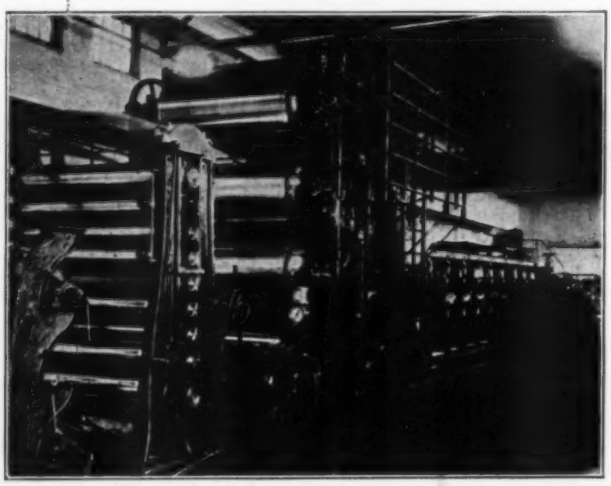
Leading Builders of the best **Fourdrinier** and **Cylinder** Paper Making Machines and other accessory equipments for Paper and Pulp Mills.



A Great Success

Our patent vertical dryers installed on a Fourdrinier machine making cover papers.

No felts used on them.

Steam pressure reduced from 15 pounds to less than 5 pounds.

No cockling of the paper.

Sheet threaded by Sheehan patent carrier system.

Increased production and better paper.

president, and Simeon Weir of International Falls, Minn., fourth vice-president of the American group. The following vice-presidents were elected in the Canadian group: Arthur D'Aoust, of Ottawa, and A. F. McLeod, of Espanola.

Carlisle Heads Big Power Combine

Floyd L. Carlisle of New York, president of the St. Regis Paper Company, has been elected chairman of the board of directors of the Eastern States Power Corporation, recently organized under the laws of Maryland. The combine merges the Power Corporation of New York, the New England Power Company, a subsidiary of the International Paper Company, various Stone and Webster interests and will be closely allied with the Mohawk-Hudson power. The Buffalo General Electric and other power interests will also be allied.

It is understood that the International Paper Company does not intend to dispose of its power sites, but will develop its own power and sell to the merged company.

Samuel M. Williams has returned to New York to resume his work with the New York World interests, after serving as general manager of the Algonquin Paper Company, in Ogdensburg, since the retirement of the former president and manager, George M. McKee, in July. Mr. Williams was loaned by the World to the Algonquin mill with the understanding that he would remain only a few months. Frank A. Augsbury, president of the company, is taking over the executive duties which were handled by Mr. Williams.

I. P. Company in Rayon Industry

The International Paper Company is the latest of the paper industries to enter the field of manufacturing rayon or artificial silk from wood pulp. The increasing importance of rayon production to paper companies having large timber limits is seen in the fact that in 1924 it is estimated that the American manufacture of this substitute for silk used approximately 25,000 tons of bleached sulphite pulp, and that this year they will use double that amount, and an even greater amount in 1926. International Paper is now one of the largest sources of supply for the pulp, and is supplying rayon manufacturers, not only in this country and Canada, but is shipping its product to Great Britain, Belgium, France, Italy and other European countries.

The ability of International Paper to divert a part of its tonnage to rayon manufacturers is due directly to the acquisition of the Canadian Riordan properties, whereby in addition to extensive timber limits in Canada, the company, among other mills, acquired the Kipawa plant. Bleached sulphite pulp used for rayon is practically the same as is used for paper making.

A good part of the proposed financing through the sale of common stock will be used to enlarge the capacity of the Kipawa mills to enable increased output of bleached sulphite for rayon. The plant is now producing pulp at the rate of 50,000 tons a year and most of it is going into the rayon manufacture.

Taggarts to Locate in Oswego

Plans of the Taggart Brothers Company, of Watertown, to build a new plant in Oswego for the manufacture of paper bags to take care of the middle western trade were revealed by B. B. Taggart, president of the company, at a hearing before the public service commission on the petition of Ernest E. Whitney, vice-president of the General Development Corporation of Oswego for a franchise for the distribution of electricity in that city.

Mr. Carlisle told the commission that he planned to make bags in Oswego and ship them by boat to supply the flour trade of the middle west. He said that he had previously considered building new plants in Augusta, Ga., and in Wisconsin. It was pointed out that this would not mean the abandonment of the Watertown factory.

Albert D. Merrill, of Watertown, has obtained a patent on a bleaching machine. The machine consists of a series of tanks into which liquids are pumped, and each tank has a propellor at one end to force the contents of the tank in the opposite direction from the flow of the liquid through the tank. Mr. Merrill has assigned the patent rights of the invention to the Stebbins Engineering and Manufacturing Company of Watertown.

A New Paper Product Company

Pulaski, Oswego county, is the latest town in Northern New York to take up the paper industry. A corporation known as the Shepard Paper Products, Inc., has just been formed. The new corporation will manufacture a paper handle or carrier for bundles of various sizes, replacing the wooden ones which are commonly used. It is said that the paper carriers can be manufactured much more cheaply. It was announced by an official of the new corporation that it has secured the sole license to manufacture these handles under the Lane patent.

The company is incorporated for $100,000 and the officers for the first year are as follows: President, Harold D. Shepard, of Pulaski and Boston; vice-president, Erwin S. Holmes, of Pulaski; secretary and treasurer, M. M. Lawless, of Boston.

International Negotiating of Purchase DeGrasse

It is reported that negotiations are pending between the International Paper Company and the DeGrasse Paper Company for the purchase of the latter company's mill at Pyrites. Officials of the DeGrasse company say that the recent court order forbidding them to discharge their refuse into the Grasse river is very serious and intimates that it may be necessary to close down the plant.

It is known that negotiations have been taking place for some time between the International and the New York World interests who own not only the DeGrasse mill, but mills at Chateaugay, Norwalk, Conn., and St. George, N. B.

Secretary of Commerce Hoover and Representative Bertrand H. Snell will speak at the New York State Utilization conference to be held at the New York State College of Forestry, at Syracuse, Nov. 12.

New York City News

November 2, 1925.

Paper Stock Dealers to Dine

Members of the New York Dealers in Paper Mill Supplies, Inc., whose membership comprises practically all of the leading concerns in Greater New York handling papermaking materials, have made arrangements to give a "Ladies' Night" on the evening of November 25, Thanksgiving Eve, at the Hotel Astor, New York. Dinner will be served at 7 p. m. and an elaborate vaudeville show will be put on. Afterward there will be dancing.

The event is for the especial entertainment of the wives and sweethearts of the association members. The annual banquet of the association will be given on the night of February 24, 1926, during the week the American Paper and Pulp Association holds its yearly convention in New York.

Under the personal management of George Lionel Rose, the Rosmor Card and Paper Company has started business with offices at 100 Varick street, New York, merchandising fine papers. Mr. Rose, who is president and treasurer of the new company, was for many years head of the Empire Lithograph Company in this city. He has made some excellent mill connections, and will carry a complete line of book and writing papers for the printing trade.

Col. W. E. Haskel recently resigned as vice-president of the International Paper Company, which office he has held since 1919. He plans an extended visit in the South before considering other connections.

The Air Preheater Corporation, 25 Broadway, New York, manufacturers of the Ljungstrom Air Preheater, is a consoli-

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KALBFLEISCH
CHEMICALS
FOR NEARLY A CENTURY

Chemicals *for* Paper Mills

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IMPORTED ~ DOMESTIC
ALL
GRADES GRINDINGS
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STRENGTH SOLUBILITY CLEANLINESS

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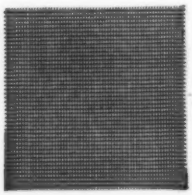
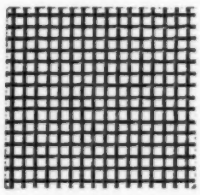
CHATTANOOGA, TENNESSEE
WATERBURY, CONNECTICUT

FOURDRINIER WIRES



In Brass, Bronze and phosphor bronze, widths up to, and including 250 inches.



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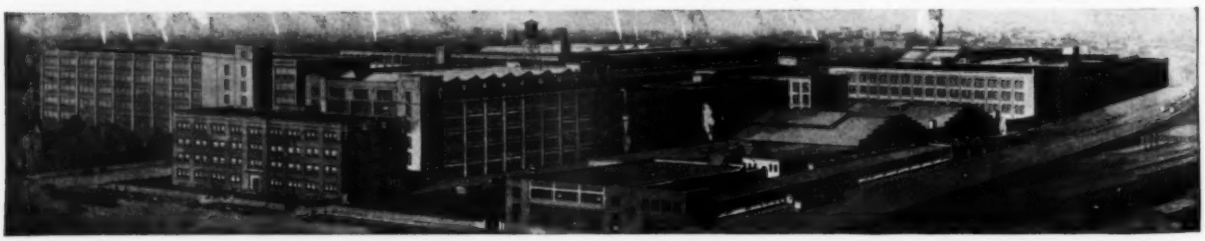
WASHER WIRES
and CORDUROY CLOTH

THE
W. S. TYLER COMPANY
Cleveland, Ohio, U. S. A.



dation of the James Howden & Company of America, Inc., and the Ljungstrom interests of Stockholm, Sweden. The newly formed corporation takes over all Ljungstrom patent rights of the Preheater, together with the shops of the James Howden & Company of America, Inc., at Wellsville, N. Y. The executive offices of the corporation are located at 25 Broadway, New York.

Thomas F. Manville

Thomas F. Manville, chairman of the Board of Directors of Johns-Manville, Inc., of 292 Madison avenne, New York, died suddenly of heart disease in his apartment in the Hotel Plaza on October 19. He was 63 years old. He had lived alone at the hotel for the last three years and was alone in his parlor when the fatal attack came upon him shortly after 6 p. m.

Mr. Manville, who had been occasionally referred to as "the asbestos king," and as "the head of the asbestos trust," had for years been one of the foremost figures, if not the chief figure, in the asbestos and allied industries. He was for years president of Johns-Manville, Inc., and only changed his position to that of chairman of the board in March, 1924. He was also connected with many other business organizations and banks.

Gottesman Foreign Office Moved

Cable advices report that the Stockholm offices of M. Gottesman & Company, Inc., wood pulp and paper importers of 18 East Forty-first street, New York, formerly located at Stureplan 13, have been removed to Kungstradgardsgaten 10, Stockholm, Sweden, where the growing staff of the company in Europe will be housed in more spacious and more conveniently located quarters.

The Stockholm branch is operated as a Swedish corporation under the name of M. Gottesman & Company, Aktiebolag, and a completely organized staff is maintained for the exclusive handling of the parent company's extensive interests in wood pulp abroad. M. Gottesman & Company, New York, are the exclusive sales agents for a number of Swedish and Continental manufacturers of bleached and unbleached sulphite and kraft pulps. The firm was established in 1886.

The Cosmos Paper Company has removed from 45 Lafayette street to 34 East Tenth street, New York, where it occupies the fourth floor and has more room to increase its stock of bond and book papers, index bristols and envelopes. M. R. Castleman, proprietor of the business, is well known in the jobbing trade in the metropolitan territory.

The Marx Maier Paper Mill Supply Corporation, organized about a year ago, has established itself at 15 East Twenty-sixth street, New York, where offices were opened a few days ago. The company will import all grades of papermaking rags, old rope, bagging and other similar materials, and will represent the widely-known firm of Marx Maier, established in 1848 and operating extensive rag packing plants in Mannheim and Berlin, Germany. The new company is affiliated with the George M. Graves Company, Inc., of Boston. James Rosenberg, formerly of the American Woodpulp Corporation, has been appointed general manager of the Marx Maier Paper Mill Supply Corporation, and M. Goudswaard his assistant.

W. C. Powers, formerly manager of sales for the Great Northern Paper Company, and now residing in London, Eng., sailed from New York early in October after spending a pleasant month in the United States, greeting old friends in the trade and studying the paper markets.

The Wickwire Spencer Steel Corporation has asked for dismissal of the case brought against it by the Collins Manufacturing Co., fine paper makers of North Wilbraham, Mass. The case involves the contamination of the Chicopee River from which the Collins company takes its water for paper manufacture. The Wickwire Spencer Steel Corporation alleges that it is within its rights, and that the complaint is unreasonable. A decision has not been rendered at this writing.

Pacific Coast News

November 1, 1925.

Will Start Construction at St. Helens, Oregon

Plans for the new St. Helens pulp and paper mill to be built at St. Helens, Oregon, by a company in which the Hawley Pulp and Paper Company of Oregon City holds the majority of the stock, will be drawn at once. Ground then will be broken and it is expected that the first unit of the plant, costing $1,500,000, will be ready for operation in November, 1926. This announcement was made by Willard P. Hawley, Jr., vice-president and general manager of the Hawley Pulp and Paper Company and vice-president of the St. Helens Pulp and Paper Company. Willard P. Hawley, Sr., is president of both concerns.

Max Oberdorfer, who designed the large paper mill of the Filer Fibre Co., Filer City, Mich., and superintended its construction, has been engaged to design the St. Helens mill and will superintend construction and later take charge of the plant.

The plan is to add five other units to the original plant as time goes on.

The Hawley Pulp and Paper Company has acquired large interests in and around St. Helens. Employment will be furnished about 300 men and the plant is expected to turn out 50 tons of finished product in 24 hours.

The building will be constructed of reinforced concrete, absolutely fireproof, and will contain paper machinery of the latest design. The plant throughout will be modern in every detail. Certain pieces of machinery to be placed in the mill will be manufactured in Germany and can be obtained nowhere else.

Kraft Pulp from Sawmill Waste

The new kraft pulp mill which is now being constructed at Camas, Wash., by the Crown Willamette Paper Company will be the second mill in the Northwest to use for its supply the wood from a sawmill which would otherwise be used as fuel or burned to dispose of same.

The Crown Willamette Paper Company have made arrangements with the Long Bell Lumber Company of Longview, Wash., to obtain a supply of 125 cords of fir lumber waste daily and the construction of the plant for the conversion of this material into chips which will be used for the manufacture of kraft pulp has already begun. This plant at Longview, Wash., which is in reality a wood-preparing plant, will employ about thirty-five to fifty men, while the new kraft mill at Camas will employ a considerably greater number than this. This wood-preparing plant is being erected adjacent to the West fir mill of the Long Bell Lumber Company.

The new industry will begin operations about February 1, 1926, and the chips will be transported by barge up the Columbia River from Longview to Camas.

This new kraft pulp mill will furnish the big mill at Camas with kraft pulp for the manufacture of both wrapping and bag paper. The demand for kraft bags now being exceedingly heavy and it is now necessary to get kraft pulp from one of this company's Canadian mills to supply the demand. The bag factory is running at full capacity and some new improvements are being made in the machinery line.

Columbia River Paper Mills in Progress Parade

The prize showing at the annual progress parade and exposition of home products was made by the Columbia River Paper Mills employees who turned out 100 per cent strong.

Their section of the parade was headed by the Elks drum and bugle corps of twenty men, followed by four Ford coupes of 1925 vintage abreast.

The sawmill, 105 men strong, followed four abreast; then each department of the plant in order—planing mill, wood-preparing mill, sulphite and ground wood mills, paper mill and finishing and shipping crews—248 men in all, besides the office and management.

Between the sawmill and planing mill, the battery of Ross lumber carriers carrying lumber and paper did stunts for the thousands of spectators.

Following this, the wood-preparing mill had loads of rough

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All Colors for Your Particular Needs

Specializing in the manufacture of paints in all colors to meet the particular requirements of paper and pulp mills.

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Made in Brass and Phosphor Bronze in All Sizes

THE LINDSAY WIRE WEAVING CO.

Collinwood Station Cleveland, Ohio

and prepared wood and the finishing room girls dressed in colored paper of home production were the hit of the parade with their rolling throne for the queen of the occasion.

Columbia River Paper Mills is one of the largest industries in Vancouver, Wash., manufacturing "The Best in the West," as their labels read.

The Pioneer Truck Company brought into the parade twenty tons of bag paper for an eastern concern which had been taken from the mills on two trucks just prior to the starting of the parade.

In addition to the parade showing, which circled the main streets of the down-town district of Vancouver, the Columbia River Paper Mills had an exhibition of paper and pulp products all week in the windows of the Grand Rapids Furniture Company on upper Main street which attracted thousands. This exhibit was gotten up in eight colors of fancy wrappings in the form of a cross-word puzzle.

The committee in charge of the parade was: E. J. Carey, assistant to general manager, chairman; Ralph Schafer, lumber mill supt.; R. Pursiful, paper mill supt.; J. Van Alstyne, sulphite mill supt.; H. Hall, finishing room foreman; D. Frame, shipping dept. head.; C. E. Braun, master mechanic.

A Great Finnish Paper and Pulp Factory

From a Correspondent

THE great Ahlström concern, which, in addition to several other important woodworking establishments, is the owners of the extensive Warkaus mills, has recently completed the work of extension and modernization commenced there some fifteen years ago. The result is that the paper and pulp mills at Warkaus now rank as some of the biggest and best equipped, not only in Europe but in the whole world. The work has been carried out according to a scheme, devised by the chief general manager of the concern, Mr. Walter Ahlström, who, with great ability and farsightedness, has made the concern a most important factor in the economical and industrial life of Finland.

In order to celebrate the completion of the work of extension, Mr. Walter Ahlström a few days ago invited the President of the Republic, several ministers and other distinguished people to visit the mills. It was a memorable occasion, being the first time that the President and ministers gave two days to inspect an industrial center.

The mechanical pulp mill has a yearly production of 40,000 tons, the cellulose mill a production of 26,000 tons and the paper mill a production of 22,000 tons. In the near future, a new great paper machine will be fitted up, producing 36,000 tons, so that the total paper output will soon reach nearly 60,000 tons. As the supply of raw material, thanks to a wise policy of the concern, is guaranteed, the firm has had no hesitation at extending its foreign markets.

It should also be mentioned that a new plywood factory with a capacity of 12 cubic meters a year will soon be ready, while in addition the sawing mill is utilizing the timber suitable for this purpose.

Thanks to untiring energy and devotion to its purpose, the concern has been able, despite many great difficulties arising out of the war and its consequences, to carry out this important work, which has entirely reshaped the old-fashioned mills now presenting themselves in every respect as fully modern and efficient. But the firm has not only rebuilt the mills, it has also erected a model community round them, planning avenues, esplanades and market places, built public buildings, schools, offices and fine workmen's dwellings.

The population of the community already amounts to about 8,000, all directly or indirectly connected with the works.

Here, indeed, a great industrial center is in being, showing the possibilities of Finland's natural resources happily exploited by national capital and technical enterprise.

Warkaus has quite rightly been called the Finnish "Port Sunlight."

The Anglo-Canadian Pulp & Paper Mill Co., an interest of the Gulf Pulp & Paper Co., St. Peter, Que., has nearly completed plans for the first buildings of its proposed pulp and paper mill plants at Limoulou, which with machinery are reported to cost nearly $10,000,000.

British Correspondence

Conditions in British Paper Industry

Newsprint mills are still fairly busy, but export trade has decreased to some extent. Those newsprint manufacturers who have relied on the Australian market for a large percentage of their trade are seriously concerned as to the likely results from the arrangements now completed and ratified by Australia and Canada, especially as news is being received that mills in course of erection in the Dominion are being rapidly pushed forward to completion. There is no doubt here that Dominion manufacturers will make great efforts to capture as much as possible of the Australian newsprint trade.

Two arguments against the concessions offered to Canada are that a number of the Canadian mills who are preparing to produce newsprint for export to Australia are largely financed by American capital; and that Canada can never reciprocate in trade with Australia to anywhere near the extent that Great Britain can, and, in fact, does.

There are already signs of decreasing exports to Australian buyers, as far as printing paper is concerned, the total for August, 1925, being 159,175 hundred weight against 187,654 hundred weight in the same month last year.

Prices remain steady in the esparto mills, both for raw material and for finished product. A slight falling off of trade has been evidenced, but this is probably only temporary.

Competition is particularly acute in the writing mills section. New watermarked varieties of paper are continually being introduced onto the market, and much difficulty is experienced in finding sales for new issues; but this policy of widening the field of choice on the part of the manufacturers is not popular among the paper buyers, who are showing a tendency to conserve their capital and to standardize their stock.

Business is bad in the wrapping paper section, exports have dropped to a serious extent, and for the eight months of this year for which figures are available imports are shown to have advanced considerably.

Details are now to hand of the composition of the committee which has been appointed to enquire into the application made by the wrapping section for the imposition of a duty on packing and wrapping paper imported from abroad. The committee will consist of Sir J. B. Brunyate (chairman), Mr. Douglas Wenham, and Mr. J. Rowan. The Secretary of the Committee is Mr. H. W. Acres, Board of Trade, Great George Street, London, S. W. 1.

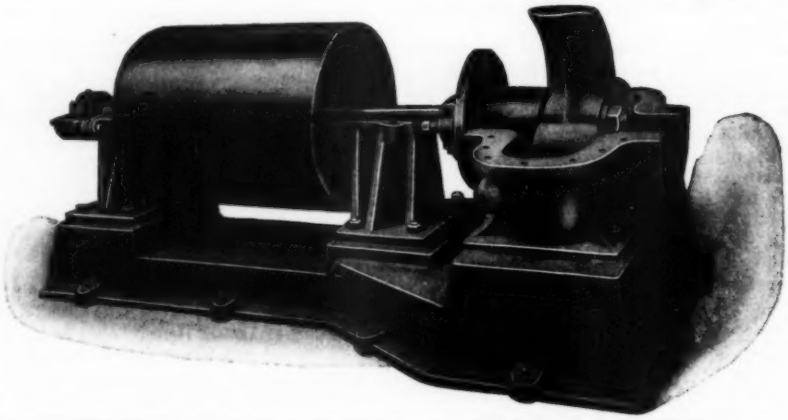
Woodfree mills are more fortunate than the newsprint mills in their fight against foreign competition, as in several directions in this section trade has showed signs of improving.

Indian Lithographers Protest Tariff

A correspondent of The Times reports that the Bombay lithographers who have to depend entirely on overseas manufacturers for the paper used in their work have represented to the Government of India that the proposed duties on paper will act greatly to their disadvantage. Most of the lithographic presses in Bombay, it is pointed out, are mostly employed on mill labels, match and "bidi" labels, and pictures of Indian gods and goddesses. The duties will increase the cost of the paper and make it impossible for them to compete with the foreign presses, especially those in Germany.

The result will probably be the capture by the Germans of much of the work at present done in Bombay. Should it not be possible to exempt litho paper, it is suggested that the Government should either provide lithographers with a license to import enough paper for their needs, or raise the customs duty on all litho-printed matter imported into India, so as to meet competition from Germany.

Press forecasts received from Australia explain that Mr. Bruce the Premier has decided to extend some assistance in the shape of a Government bounty on suitable newsprint produced by the projected newsprint industry in Tasmania. It is stated that interested parties have proposed £6 per ton; but it is anticipated that the Government will grant a lower subsidy than this.



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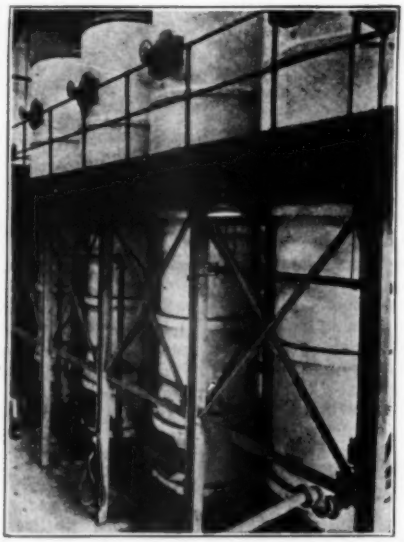

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New Catalogs, Booklets, Etc.

Allis-Chalmers Mfg. Co., Milwaukee, Wis.—Bulletin No. 1132, dated October, 1925, gives a graphic display of some of the advantages of types "AR" and "ARY" polyphase induction motors equipped with Timken tapered roller bearings.

American Blower Co., Detroit, Mich.—Bulletin No. 6103 describes in detail a new product of this company known as the American H. S. Fan designed for high rotative speed on direct motor drive. Incorporated in the bulletin are the following: specification sheets which describe and illustrate the various parts of the complete fan; standard arrangements; capacity tables based on tests run in accordance with the Standard Test Code adopted by the National Association of Fan Manufacturers and the American Society of Heating and Ventilating Engineers; and dimension sheets in detail of standard arrangements.

American Engineering Co., Philadelphia, Pa.—The new Taylor Stoker catalogue has just come off the press. It is an unusually attractive book, printed in black and red ink throughout, with the utmost care given to illustration detail. The catalogue contains a great deal of new matter, including a section on the use of preheated air, for which a new type of Taylor stoker has been developed, and a description of the Taylor stoker's adjustable distributing ram system, which makes it possible to vary the volume of the retort to suit the burning characteristics of different kinds of coal. Photographs of numerous Taylor stoker installations in industrial plants are also shown.

The Austin Company, Cleveland, O.—The eighth edition of the Austin Book of Buildings, Catalogue No. 20, has been issued recently. This book illustrates and describes modern trends in the design, construction and equipment of industrial and commercial buildings. It is also a reference book of building data for executives in charge of building projects.

Cameron Machine Company, Brooklyn, N. Y.—The article entitled "The Cause and Cure for Welts and Wrinkles in the Surface of Rolls of Paper," by James A. Cameron, which appeared in the July, 1925, issue of THE PAPER INDUSTRY, has been printed in attractive shape for complimentary distribution by the manufacturer.

De Laval Steam Turbine Co., Trenton, N. J.—An up-to-date discussion of the design and applications of centrifugal pumps is presented in a copiously illustrated 72 page book. This company manufactures high efficiency, high head, high speed centrifugal pumps with two part casing split in the plane of the shaft axis.

Link-Belt Co., 910 So. Michigan Ave., Chicago.—"The Story of Link-Belt" has been recently published by this company, which covers the history of the development of the conveying machinery business which started with the invention of the Ewart Detachable Link-Belt fifty years ago. This year, Link-Belt is 50 years old. The story has been written in an authoritative and interesting manner, and presented in exceedingly attractive style.

Metropolitan Life Insurance Co., New York City.—How to stimulate better production and to compensate efficient workers in the office, are problems that have been solved by use of a well adapted bonus system, according to several nationally known companies whose experiences have been given to the Policyholders' Service Bureau of this company. Outlines of these systems are recorded in the fourth leaflet of the series on Compensation Methods—"Methods of Compensating Office Employees."

Philadelphia Gear Works, Philadelphia.—Bulletin No. 10-25 has just been issued, which describes briefly and illustrates the units of their latest types of worm gear and spur gear speed reducers. Views of a few installations are also featured.

Phillips' Paper Trade Directory of the World.—The 1925 edition of this compendium of information, published by S. C. Phillips & Co., 47 Cannon Street, London, E.C.4, England, is up to its usual high standard of completeness and reliability. A new feature has been added in the listing of a number of Scandinavian shipping and trade marks. Altogether, the book is a most valuable reference work and quite a necessity to all who are identified in the manufacture and sale of paper, boards and pulp, anywhere in the world. The price is twenty-one shillings or about five dollars and four cents plus postage.

Uehling Instrument Co., Paterson, N. J.—New bulletins Nos. 118 and 118-A describe the Apex CO_2 Recorder and Indicator. These instruments operate on the orifice principle and do not employ chemical solutions. The principle of operation is fully explained in the bulletins.

National Directory of Commodity Specifications

Representing the first attempt on the part of the Department of Commerce to collect and publish a classified list of existing commodity specifications formulated not only by public purchasers throughout the United States, but also by the nationally recognized trade associations, technical societies and public utilities, the National Directory of Commodity Specifications has been issued by the Bureau of Standards with the co-operation of the Bureau of Foreign and Domestic Commerce of the Department of Commerce.

Information regarding the best known specifications for more than 6000 commodities is given in convenient form in the book, which tells not only what specifications are in general use, but also by whom they were prepared and where copies can be obtained.

The contents include: A Statement and Endorsement by the Advisory Board; A Foreward by Secretary Hoover; a thoroughly classified list of specifications for all types of commodities; an alphabetical list of commodities, which serves as an index to the specifications; and directions for obtaining copies of specifications listed in the Directory.

Copies of the National Directory of Commodity Specifications may be obtained from the Superintendent of Documents, Government Printing Office, Washington, D. C., by sending with the order the remittance price of $1.25.

The proposed new plant of the Mason Fibre Co., Laurel, Miss., will consist of several buildings, including a power station.

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Sorting Tables
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Worm Washers
Pulp Thickeners
Finishing Room Trucks

The Paper Mill Specialties listed above represent the finished product of many years' experience and intensive study to produce the most durable and economical machinery for use in the Paper and Pulp Mills.

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News Briefs from Washington

REPORTS from the Consuls and Commercial Attaches of the Department of Commerce received during the past month emphasize the following conditions in the paper industry abroad:

Paper Situation in Great Britain.—Conditions in the British paper industry are reported as being approximately without change over the past month, but as showing a slight increase in unemployment. In Scotland prices have remained fairly steady at a low level, according to Consul W. L. Bonney at Edinburgh. Mills using imported pulp are experiencing some difficulty in meeting competition from the mills utilizing esparto, as costs of production at some of these latter are no higher and they are therefore in position to compete actively with those mills using Scandinavian pulp.

A late report from Trade Commissioner M. M. Mitchell at London states that the British wrapping paper industry is facing a crisis. It was brought out before a meeting held by the Board of Trade Committee appointed under the Safeguarding of Industries Act that foreign-made packing and wrapping papers are now entering Great Britain at prices varying from £5 to £10 per long ton below those at which similar papers can be manufactured by the domestic mills. The spokesman for the Union of Wrapping Paper Makers alleged that £6,000,000 worth of machinery is faced with complete idleness as a result of this competition from foreign mills which have the advantage of cheaper materials, lower wages, and longer working hours. An import duty was asked for on foreign made papers in order to protect the domestic industry.

Demand Active for Belgian Paper.—The Belgian industry is active and is reported to be operating at maximum capacity. Demand from both domestic and foreign markets is brisk, a ten per cent price advance recently having been announced, with export stocks greatly depleted.

German Paper Industry Shows Improvement.—In Germany, trade reports from Cologne, Saxony and Silesia note a distinct revival of business during the last few weeks, while in some other sections, notably Hanover, trade is said to be slack at the present time. The demand for newsprint and other low grade papers has not increased as expected and the domestic supply has increased, largely because the rains of the last two or three months have again supplied the mills with sufficient water to carry on full time operations. The market for the better grades of paper continues firm and exports are reported to be satisfactory, considerable quantities being shipped to South American countries. The Soviet Government is also reported to have concluded negotiations for 6,000 metric tons of newsprint for future delivery on a six months' credit basis.

In the Frankfort district conditions are less favorable than during preceding months, orders having decreased and a considerable amount of underbidding having been evident, despite fixed "convention" prices. Only the most urgently needed board products are being actively purchased. The demand is principally for machine-made leather boards and pulp boards, according to Consul General Dumont.

Norway and Finland Planning Standardization of Paper Sizes.—The committee appointed by the Federation of Norwegian Industries to formulate proposals for the standardization of paper sizes has completed its report and has recommended that in order to reduce the variety of sizes now in use the metric or international sizes be adopted as the Norwegian standard. The metric sizes are already in use in Germany, Switzerland and Austria.

Similar plans are now under way in Finland. Late in September various State officials, paper manufacturers and paper consumers met in Helsinki to discuss the standardization of both sizes and types of paper. The desirability of such standardization was acknowledged but it was unanimously agreed that the transition must be gradual because of the changes which would be necessary in machinery and methods of handling. Three subcommittees were appointed to consider the problem from the point of view of (1) the printers, publishers and binder, (2) the trade and (3) officials. These committees are expected to have completed their work by February, 1926.

Russian Demand for Paper Increasing.—The American Commercial Attache at Copenhagen states that Mr. Jakovleff, representing the Russian Central Paper Trust, recently visited Norway and before leaving said that Russia's importations of paper for the current year will probably be over 100,000 tons, despite the fact that Russian production is increasing about 25 per cent each year. According to reports from Soviet Russia, the estimated consumption of paper during the fiscal year beginning October 1, 1925, will be 380,000 tons, of which 122,000 tons will be purchased abroad, and will be mostly newsprint, printing and writing papers.

Commercial Attache C. J. Mayer at Riga, Latvia, reports that on September 11 a contract was closed between certain Esthonian paper mills and the Soviet Trade Delegation in Reval, providing that paper to the value of approximately $2,315,000 be delivered within eight months, the terms being 50 per cent cash and 50 per cent bills of exchange as each delivery in part is made. The Esthonian mills are said to have sufficient orders on hand to insure their continuous operation at full capacity up to the end of June, 1926.

Pulp Exports to U. S. from Czechoslovakia Increases.—The pulp and paper mills of Czechoslovakia are working full time on both domestic and foreign orders. There has been a noticeable increase in the volume of exports of pulp to the United States during the past year, and also a decrease of exports through Hamburg, all of which is thought to be the result of American buyers and mill operators having established direct contact with Czechoslovak manufacturers and exporters.

Italian Paper Industry Suffers Dullness.—In Italy the paper industry has been affected to some extent by the seasonal dullness evidenced in all branches of Italian industry. The demand for printing and wrapping papers and boards was slow and prices advanced only 8 cents per 100 pounds for newsprint, 17 cents for book, calendered, and from 3 to 8 cents for board.

China Demanding More Wax Paper.—Consul General Tredwell at Hongkong reports that there is a growing market for waxed paper in China. While heretofore the price of the American product has been too high to permit competition with Sweden, Germany, Norway and England in similar lines, it is believed that an American product at a price more nearly that of other waxed papers now on the Chinese market would find a ready sale because of its superior quality. The demand for this kind of paper has been increasing steadily since the Chinese have begun to use waxed and similar papers as wrappers for candy. The Commercial Attache at Pekin also reports an extensive and increasing use of waxed papers in the manufacture of firecrackers. The greatest demand is for reds, greens, and blues having a highly calendered surface.

Chile Demand for Containers Increasing.—Commercial Attache Ackerman at Santiago, Chile, reports a growing demand on the part of the public for sanitary containers for foodstuffs, particularly ice cream, which is becoming increasingly popular. The sale of ice cream is expected to grow rapidly with the advance of summer and a fair market for these carton or tubular containers could be created provided the price of the article was not too great.

Mexico Customs Hold Pulp Imports.—Commercial Attache A. V. Dye, at Mexico City states that imports of pulp into Mexico have been held by the customs authorities at port cities for the payment of penalties assessed because of faulty

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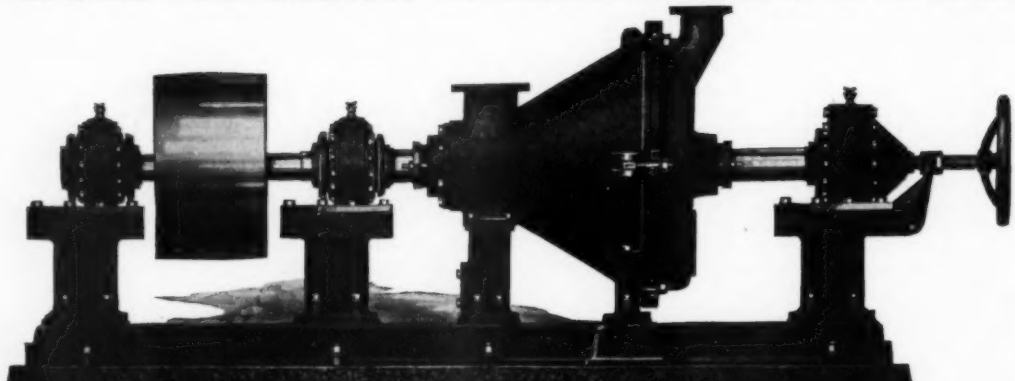

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perforation of the sheets. Such perforations should be complete and unmistakable in order to avoid the heavy fine imposed through the charge of false declaration.

Canadian Newsprint Situation.—According to Consul General Albert Halstead, at Quebec, Canadian production of newsprint in September was 124,704 tons, an increase of 4,084 tons over August and of 16,604 tons over September, 1924. During the first nine months of the year the total Canadian newsprint production was 1,113,468 tons, an increase of 97,675 tons over the same period of 1924 and of 169,776 tons over the first nine months of 1923. Up to September 1, 1925, United States newsprint consumption is estimated to have increased 5 per cent over the same period of 1924, while that of Canada has increased 4 per cent. During the same period there was an increase in United States imports of newsprint from Canada of 5 per cent above the like part of 1924. It is noted that decreases in the price of newsprint in the face of increased consumption by both countries are to be accounted for almost entirely through the increased capacity and output of the mills of both countries. Canada now has a productive capacity of 5,760 tons of newsprint per diem, or 1,728,000 tons per 300 annual running days. Present plans make a further increase probable before January 1, 1926.

Paper Board Industries' Association Takes Over Activities of Three Former Associations

At a meeting of manufacturers of boxboard, corrugated and solid fibre boxes and folding boxes, held at the Congress Hotel, Chicago, on Thursday, September 11th, Paper Board Industries Association was organized to take over the activities of the three heretofore existing associations; namely, the Boxboard, National Container, and Folding Box Manufacturers' National Associations.

Objects

The objects of the new association, which are clearly set forth in Section 2 of the Constitution, are as follows:

(a) To promote the general welfare of the various branches of the paperboard industry, and to encourage and bring about close and more friendly relations between the members.

(b) To promote fair trade practices.

(c) To promote and develop the market, both domestic and foreign, for paperboard and its products.

(d) To promote and encourage industrial research with a view to the improvement and development of manufacturing processes.

(e) To encourage the principle of arbitration.

(f) To co-operate with transportation committees and government boards in establishing equitable traffic regulations and to safeguard members and shippers against actions or rulings detrimental to the industry.

(g) To develop and encourage accurate methods of accounting and cost determination.

(h) To collect, compile and disseminate statistical data relative to the paperboard industry so as to enable members to give intelligent direction to their respective activities.

Conferences Led to Organization

About a year ago, the idea was advanced that there should be closer contact between the several different branches of the closely related paperboard and box manufacturing industries. The desirability of this closer relationship became more and more apparent and at meetings of the associations particularly during the past two months reasons were advanced for the desirability of bringing about the merger of the three associations. Questions regarding the feasibility of this move arose and it was decided the best way to answer the questions was to appoint representative committees to meet together and then report back to their respective memberships.

At the first meeting of the joint committee it was decided that one large association was most desirable and that the advantages to be derived from the creation of one large representative association, which brings the industry closer together, greatly outweighed any possible objections. Subcommittees were appointed to submit a recommended constitution and to report on statistics. At the second meeting these reports were received and a memorandum was prepared, a copy of which was to be submitted to the membership of the associations which met September 10th. The recommendations were unanimously ratified.

Officers and Staff Appointments

Three members from each of the three groups comprising the new organization form the executive committee. Fletcher M. Durbin, Sefton Manufacturing Company, Chicago, was elected president. The following staff has been appointed by the executive committee:

G. R. Browder—General manager and treasurer.
H. A. Dickie—Assistant general manager.
H. S. Adler—Secretary.
Grafton Whiting—Statistician.
Dr. E. O. Merchant—Economist.
Morris Townly—Legal adviser.

The general offices of the association were maintained at 608 South Dearborn street, Chicago, with a branch office located at 19 West 44th street, New York. Mr. H. A. Dickie is in charge of the New York office.

The next meeting of the association will be held November 18th and 19th in New York. The meetings of the committees will be held November 17th.

Canadian General Electric Co. Entertain Paper Men

Fifty representatives of Canadian pulp and paper mills were entertained by the Canadian General Electric Company in Toronto, October 12 and 13. The gathering made its headquarters in the King Edward hotel.

A number of addresses on electrical problems of the industry were read and discussed. The meeting opened at 10 o'clock Monday, with addresses by D. C. Durland, president, and J. J. Ashworth, general manager, of the Canadian General Electric Company. Papers read that day were as follows: "Evolution of the Sectional Paper Machine Drive," by H. W. Rogers, General Electric Company; "The Electric Steam Generator," by M. P. White, Canadian General Electric Company; "Switchboards and Control Devices," by S. E. M. Henderson, Canadian General Electric Company; "Steam Turbines for Paper Mills," by H. J. Madison, General Electric Company, and "Modern Trends in Industrial Control Practice," by A. G. Turnbull, Canadian General Electric Company. A motion picture, "The Wizardry of Wireless," was shown at the beginning of the afternoon session.

The following papers were read during the following day's session: "Flow Meters, Mechanical and Electrical, for Steam and Water," by R. E. Woolley, General Electric Company; "Power Factor Improvement," by B. L. Barnes, Canadian General Electric Company; "Electric Pumping in Paper Mills," by R. H. Rogers, General Electric Company, and "Care and Maintenance of Electrical Equipment in Pulp and Paper Mills," by W. W. Cronkhite, General Electric Company.

In the afternoon of the second day a bus trip was made to the Mississauga Golf and Country Club for golf and dinner. Those of the guests who did not play golf were taken on a sight-seeing trip in and around the city of Toronto, ending up at the club for dinner with the remainder of the party.

One of the features of the convention was an automatic delineascope in the hotel lobby, showing continuously successive views of electrical applications in pulp and paper mills. This device projected 100 lantern slides with appropriate titles.

Charges Against Permutit Dismissed

At a regular session of the Federal Trade Commission, held at its office in the city of Washington, D. C., on the 20th day of October, 1925, a complaint filed by the commission on September 15, 1924, against the Permutit Company, manufacturers of water softening systems, 440 Fourth Ave., New York City, was dismissed.

The Commission made an exceedingly exhaustive investigation of the trade practices of the Permutit Company. Nearly one hundred witnesses were examined, over eighty of whom were produced by the commission in support of its complaint, the commission's witnesseses, including salesmen, officers and attorneys of a number of concerns engaged in selling zeolite water softeners in competition with the Permutit Company.

The unqualified dismissal of its complaint by the commission is a vindication of the company and a refutation of the charge that they were guilty of any unfair trade practices.

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Canadian Section

Montreal, November 2nd, 1925.

Canadian Pulp and Paper Association Wants Lower Freight Rates

In view of the forthcoming general investigation of railroad rates by the Railway Commission, the Canadian Pulp and Paper Association has been asked by that Commission for a statement of the situation as bearing on the pulp and paper industry. A brief prepared by the Association has now been sent to the Board. It deals with the importance of the pulp and paper industry, which as an exporting industry ranks second only to agriculture and livestock. It is submitted that fair and equitable freight rates are vital to the welfare of the industry as well as to its further development and expansion, for the following reasons:

1—Any undue burden resulting from the imposition or maintenance of excessive freight rates put the Canadian pulp and paper industry at a distinct disadvantage with its European and American competitors.

2—Since pulp and paper, no less than grain, depend on the world's markets, home consumption being comparatively negligible in extent, Canadian exporters of these commodities require and should receive every encouragement in meeting world-wide competition, which can only be given through a substantial reduction in rates from our mills to seaboard on overseas business.

3—The burden of railway freight rates applies not only to our finished products, but also enters very largely into the cost of the raw materials, it being estimated that every carload of finished products from the mill represents four carloads of raw materials shipped into the mill.

The Association, in its brief, submits that freight rates on pulpwood and wood pulp are now excessive, being considerably greater than those paid by our chief competitors, and should be readjusted downwards.

Maritime Provinces Rich in Water Powers

It is popularly believed that the water power resources of the Maritime Provinces are negligible; but work carried out by the Dominion Water Power Branch in that part of the country during the last decade or so has given surprising results. Available water power to extent of 500,000 horsepower has so far been investigated in Nova Scotia and New Brunswick, and the list of available sites is constantly growing.

At present the total water power developed in the two provinces is estimated by the Dominion Water Power and Reclamation Service at 108,650 horsepower, of which 44,650 is in New Brunswick and 64,000 in Nova Scotia.

Further projects are under consideration in both Provinces. Several of the recent development, such as those at St. Margaret's Bay and at Sheet Harbor, were primarily intended for the development of the pulp and paper industry; while the more important plans which are now being considered, such as those for the development of Grand Falls in New Brunswick and the Mersey River in Nova Scotia, will, when carried through, result in very considerable expansion of the pulp and paper industry in the Maritime Provinces.

Power Shortage Faced in Twenty-five Years

The two main factors involved in the wonderful development of the Canadian pulp and paper industry during the last 15 to 20 years are cheap and abundant pulpwood and cheap and abundant power. Much has been heard about the necessity of conserving our forest resources; but now attention is also being drawn to the fact that a similar attitude should be taken in connection with our hydraulic power.

At a recent meeting of the American Society of Civil Engineers, held at the Mount Royal Hotel, Montreal, a distinguished member from New York seriously and sincerely presented a carefully prepared case for the exportation of Canadian power to New York and New England, based on the assumption that there was sufficient latent water power in Central Canada to meet the needs of the provinces of Quebec and Ontario for at least a century.

In a tactful reply Mr. Julian C. Smith, president of Shawinigan Water and Power Co., clearly and courteously explained the real power situation in Canada. He pointed out that the idea that we had vast reserves of water power, more than sufficient for our domestic needs for many generations, was entirely illusory; in fact, that a recent exhaustive review shows that even with the water powers of Central Canada pooled to meet the certain needs of the two provinces, a certain power shortage must be faced within 20 to 25 years. The water powers that can be developed for use in New England and New York are precisely those which by their strategic location in the Dominion are vital to the progressive development of the commercial centers of Ontario and Quebec, which fact, along with the limited extent of our reserves, is the real crux of the whole power-exportation question.

It is stated that Canadian news print mills already are beginning to feel the advantages of the new Australian Trade Treaty in the opening up of the market there through the removal of the customs tax of 3 pounds per ton. It is estimated that in the three months to December 31st, about 6,000 tons will find a market there from Canada, and that next year 30,000 tons will be shipped from this country.

QUEBEC

New Price Brothers Mill Completed

Construction of Price Bros.' new 200-ton newsprint mill at Riverbend is now practically complete, and one of the 100-ton machines will start up this month, while installation of the other machine is expected to be completed by the end of the year. With the coming into full operation of the Riverbend mill, the company's total newsprint capacity will be 700 tons per day.

This mill will be entirely operated, as regards both motive power and steam generation, by the hydro-electric power supplied from the nearby Duke-Price development, and will be one of the first newsprint mills on this continent to be operated throughout by electrical power. In all respects the equipment of the mill if of the most modern and efficient type, enabling it to manufacture newsprint under the most economical conditions.

Initiator of Huge Power Development Passes On

James B. Duke died at his home in New York on October 10th, at the age of 68. Though he was generally associated, in the popular mind, with the building up of the American tobacco industry, Mr. Duke was interested in a large number of other great enterprises and in recent years had devoted a considerable portion of his energy to the hydro-electric development of North Carolina and of the Lake St. John district.

Together with the late Sir William Price, he organized the Quebec Development Co. which has built a large hydro-electric plant at the Grande Décharge, where the Saguenay River flows out of Lake St. John. This development is at present generating 360,000 horsepower, and can be extended at a comparatively slight cost to a maximum capacity of 540,000 horsepower.

In association with the Aluminum Company of America (Davies and Mellon interests) he recently started working on a plant at Chute à Caron, a short distance below the Grande

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Décharge, where 800,000 horsepower will be harnessed, and a considerable portion of this energy will be used in the largest aluminum manufacturing plant in the world on which work is also being started.

Owing to Mr. Duke's activity, the Saguenay and Lake St. John region bids fair to become one of the most important industrial centers of the Dominion.

His sudden death has caused deep regret in this country, and to none more than to Premier Taschereau and to Major J. H. Price. Mr. Duke, however, some time ago had made provisions for such an occurrence, and his great projects in Northern Quebec will be realized along the plans already laid out. By a strange coincidence, Mr. Duke passed away a year after his partner in the Grande Décharge power deal, Sir William Price, who lost his life tragically in a landslide on the second of October.

McGill Secures Professor Hibbert for Chair of Industrial Chemistry

Professor Harold Hibbert, D.Sc., Ph.D., late of the Sheffield Scientific School, Yale University, and one of the best known industrial chemists, has been appointed to the newly established chair of Industrial and Cellulose Chemistry at McGill University. Dr. Hibbert, who recently arrived in Montreal from Europe, will not take up his duties permanently until January, as he is engaged in an investigation in Europe of recent and prospective developments in pulp and paper and cellulose-using industries, and will not be free for some months.

He is a graduate of Victoria University, Manchester, from where he went to take his Ph.D. at Leipsic, Germany, and returned to Victoria, where he studied for his D.Sc., teaching all the time in the meanwhile. For some years he was engaged in research work at the Mellon Institute of Industrial Research, Pittsburgh, and was on the British Mission at Washington. He had a private practice in New York, which he left for Yale in 1919, since when he has been connected with that institution.

His duties in the new department will be the study and teaching of, and research in cellulose chemistry, a work which, it is recognized, the tremendous and ever-growing importance to Canada of her pulp and paper industry renders of the highest importance. The chair was established by the recent endowment of $200,000 by the late Mrs. E. B. Eddy, for the promotion of properly conducted scientific research for the pulp and paper industry. It has been arranged that the Canadian Pulp and Paper Association will contribute to the support of the Department of Chemistry.

J. A. Thomassin, of Shawinigan Falls, was killed recently when he fell from a height of 75 feet at the St. Lawrence Paper Mills, Three-Rivers. He was working for the Foundation Co., which has the contract for the enlargement of the St. Lawrence Paper Mills.

Mr. Thomas Malone recently passed away at Three-Rivers, at the age of 72 years, after an illness of only a few days. He was a well-known figure in the city and district. His chief line of business was that of lumber. He was considered an expert in matters of lumber and timber limits, and was often called upon to give expert opinions on these subjects.

St. Maurice Will Not Increase Newsprint Output

St. Maurice Paper has issued a denial to the report that the company intended to enlarge its present plant by the addition of two or three more newsprint machines. This, it is pointed out, would mean new production of 200 to 300 tons, in addition to the 140 to 150 tons that was added this year by the company. As it stands at present, the company is producing over double the amount of newsprint that it did last year and has its usual production of sulphate pulp, which is shipped to the parent company, Union Bag and Paper Corporation.

With regard to the announcement that a machine from the Union bag mill at Hudson's Falls, N. Y., is to be transferred to the Cap de la Madeleine mill, it is stated that this machine is for making the wrapping paper required by the company to wrap its newsprint. The capacity of the machine is about 5,000 tons a year; and as St. Maurice requires only about 2,500 tons, the balance will probably be disposed of to St. Lawrence Paper Mills, which now have to buy their wrapping paper for their newsprint rolls from other sources.

Riordon Liquidator Makes Final Distribution

Creditors of Riordon Company, Limited (in liquidation) were in receipt a short time ago of a first and final dividend sheet providing for the distribution of the assets of the company, the physical properties of which recently went under the hammer to the International Paper Company. The communication is from Gordon W. Scott, the liquidator, who gives notice that final distribution will be made after November 2nd, subject to such objections as may be sustained with the approval of the court.

The Superior Court will be petitioned on October 22 for approval of the dividend sheet. The statement shows after payment of bank and preferred claims, only $100,802 distributable among privileged claimants for the sum of $1,276,759; and only $1,668,068 for the $6,180,000 of first mortgage bonds. Nothing is left for the general mortgage bond holders or the unsecured creditors of the company.

At a recent meeting of the Eastern Townships Associated Boards of Trade and the Eastern Townships Immigration Society, G. C. Piché, Chief Forester of the Province of Quebec, gave a lengthy address on reforestation, outlining what European countries were doing to maintain their forest areas, and describing the work which was being carried on by the Quebec government.

Mr. Darvill, mill manager, and Mr. W. E. Aitken, chemist, of Peter Dixon & Sons, Ltd., Grimsby, England, recently visited some of the more important Canadian paper mills, and more particularly the Quebec newsprint and pulp mills. They found the Chicoutimi Pulp Co.'s mill of special interest as it has furnished the Dixon mill with wood pulp that was found of very satisfactory quality. Price Bros.' mill at Kenogami proved to be an eye-opener, and the layout of the new mill at Riverbend was highly commended. What impressed them most was the enormous hydro-electric development at Grande Décharge. They enjoyed visits to the Laurentide Company and to the Belgo Canadian Paper Co. They were also able to make a brief visit to the mills at Three-Rivers, where the extensive mill of the Canadian International Paper Company, the largest paper mill in the world, was of unusual interest.

St. Lawrence Paper Mills, Three-Rivers, has acquired the interests of Hon. E. Ouellette, and of Mr. R. Tourville, the two largest shareholders of the Tourville Lumber Co., of Louiseville, Que., and will take possession of the mill and timber limits, early next spring.

Three students of the Superior School of Chemistry of Laval University, Quebec, were awarded bursaries from the Price Foundation of $25,000 established at Laval by the late Sir William Price. They are L. M. Cloutier, of Cap St. Ignace, who received $100; A. Paquet, of Quebec, who received $200; and P. Gagnon, of Danville, who received $300.

Annual Meeting Being Organized

At the regular meetings of the executives of the Canadian Pulp and Paper Association and of the Technical Section held in Montreal on October 16th, preliminary plans were taken up for the Annual Meeting to be held in Montreal on January 27th to 29th. Some innovations have been decided on in connection with the meeting, further details of which will be published later. Considerable attention was also devoted to the educational work that is being done by the Institute of Industrial Arts, and by the Provincial School of Paper Making at Three-Rivers.

The Technical Section executive discussed matters relative to the progress of industrial research, and plans for the An-

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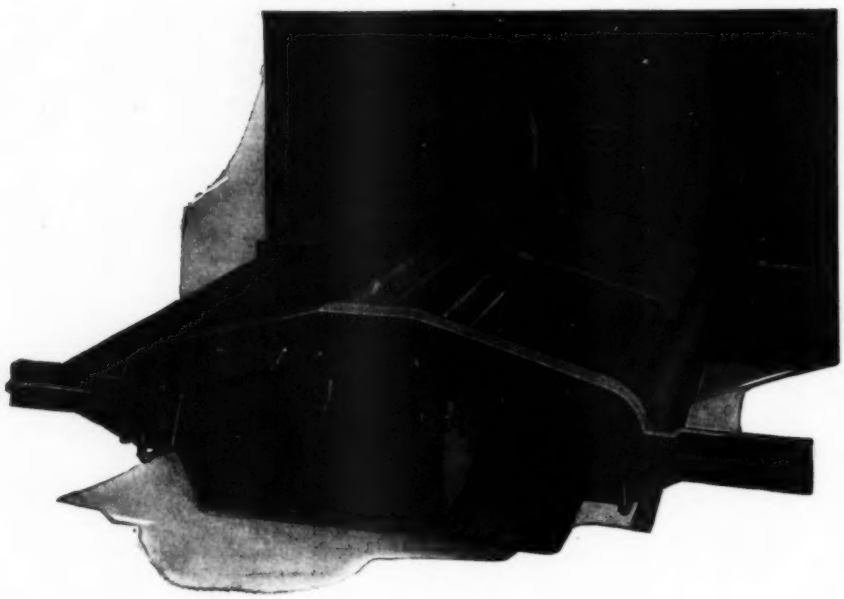

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nual Meeting, R. W. Hovey and W. G. Mitchell were added to the Committee on Program. Several papers have already been provided for, and the committee expects to announce the whole program very shortly.

In connection with Mr. Kohl's recommendation at the summer meeting that there be a Committee on Power, it was thought advisable to link this with the work that has been done on paper drying under the able guidance of E. B. Wardle, of Laurentide.

Work Started at Chelsea

Initial construction work in connection with the erection by International Paper at Chelsea of a large newsprint mill and power plant to cost in the neighborhood of $6,000,000 was started towards the middle of last month. Fraser Brace, the contractors, have already 200 men at work digging the excavations for the foundations, and the work is being pushed as fast as possible so as to have them completed before the winter sets in in earnest.

At a price which has not yet been divulged, but is expected to be slightly over $1,000,000, the Aluminium Co. of America is understood to have purchased the Roberval-Saguenay Railway, formerly operated by the Chicoutimi Pulp, now the Quebec Pulp and Paper Mills. The railway runs from Ha-Ha Junction to Port Alfred, with a branch line to Chicoutimi, and is about 21 miles long.

The Canadian Paperboard Co., Ltd., Montreal, are making repairs and additions to their factory at a cost of $40,000; The new one-story unit, which will be 60 ft. by 90 ft. in dimensions, will be fireproof and of brick construction.

Wayagamack News, at Three-Rivers, have completed the erection of their first newsprint machine, and by the time these lines are in print it is expected that paper will be coming off the machine. The erection of the second machine is being rushed to completion.

The annual report of the Canadian Paperboard Co., Ltd., for the fiscal year ended June 30, shows that earnings were slightly lower than the previous year, but still sufficient to pay bond interest more than twice over, after reserving $40,000 for depreciation of plant and machinery.

ONTARIO

Abitibi Planning Considerable Expansion

Abitibi Power and Paper Company are carrying out plans for increasing the capacity of their big newsprint mill at Iroquois Falls to at least 800 tons a day during the next twelve to eighteen months. The plans include the installation of three machines in addition to the seven now operating with a combined capacity of 500 tons daily. The plans also include the speeding up of four of the present machines by about 25 per cent.

These plans will be carried out as soon as the power from the Island Falls plant, purchased a few months ago from Hollinger Gold Mines, is available. The transmission line will be ready by the time the snow flies, cables now being strung, and work is being rushed on a new 110,000 volt substation.

The first use to which the new power will be put will be to heat electric boilers, a battery of which is now being installed. Hitherto, Abitibi's chief competitive cost has been for coal, which, on account of the long haul, costs the company almost twice as much as the Southern mills pay. At the present time Abitibi is using approximately 300 tons of coal daily, 200 tons of which will be eliminated when the electric steam boilers are in operation. It is understood that the saving will amount to over $3,000 a day.

The Hon. James Lyons, Minister of Lands and Forests for Ontario, left recently for his annual tour of inspection of the various sections which come under his jurisdiction in connec-

NO GUESS WORK—

on your part, as to whether the Camachine is the one best suited to do your slitting and winding. We stand ready to prove to you by a demonstration at our factory, that the Cameron machine is flexible, speedy, and economical in maintainence.

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Be convinced, by an actual demonstration, that we have a machine that will be a money-making addition to your business.

May we tell you of our various types of machines, and explain what these good roll-winders can do for you. Just let us know what size and kind of rolls you make, and we will be glad to send full information and prices.

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tion with northern development work. It is expected that Ontario will benefit by $25,000,000 from the impending sale of nearly 9,000 square miles of timber and pulp wood areas.

Mattagami China Clay Deposits of Exceptional Quality

According to a report of H. Sydney Hancock, engineer, the china clay deposits in the Mattagami River region, Kipling Township, Northern Ontario, are marketable at remunerative prices. "Generally speaking," says the report, "the deposit of china clay and silica sand is overlaid by a covering of dense plastic fire clay, which merges into the silt and loam of the top soil. The deposit itself consists of a high grade kaolin intermingled with a quartz sand that is pure silica with a few infrequent pebbles, that are either unchanged feldspar or quartz, and absolutely nothing else. This unique condition indicates that every ton of this deposit, below the limited top overburden, is marketable at remunerative prices.

"We have here a vast deposit of commercial material of a unique character. In the Cornish deposits it takes from five to seven tons of clay ground to produce one ton of merchantable china clay. In this case I am conservative in assuming that the deposit contains thirty per cent of clay, the balance of seventy per cent being pure silica sand of at least equal value per ton."

Work Starts on Extensions to Fort Frances Mill

Gangs of men are engaged in preliminary work for the new paper mill to be erected at Fort Frances by the Backus interests. It is understood that the foundation and the necessary excavation for the new mill will be completed this fall and winter, and construction will be pushed as rapidly as possible.

A retaining wall will be put in on the west side of Front St., close to the C. N. R. track, to permit of the additional room required for the new mill, which will be erected to the east of the present plant. Mr. McLénnan, head of the construction department, was in Fort Frances recently, in conference with E. W. Backus and his associates in regard to the progress of the work.

It is rumored that the old Riordon bleached sulphite mill at Merritton, which now belongs to International Paper, will again be put into commission. The mill, which has a capacity of 40 tons of bleached sulphite daily, has been idle since the Riordon organization went into receivership several years ago.

Shipments of pulp wood from the Thunder Bay district have been heavy during the past season, and about 130,000 cords will have gone out before the close of navigation. Most of the wood is consigned to Erie, Pa., but a good deal of it found its way to Port Huron and Detroit. The value of the product is in the neighborhood of $1,400,000.

Director Deutch, general manager, and Dr. Mueller Clemm, technical director of the Zellstoffabrik Wladhof, Mannheim, Germany, recently paid a visit to the mill of Abitibi Power and Paper Co., at Iroquois Falls.

John Chopin, tour boss at the Abitibi mill, has severed his connection with the company and has left for Freeport, Maine, where he will spend the winter. He had been at Iroquois Falls for nearly ten years.

Ontario Pulpwood Limits Allotted

Hon. James Lyons, Ontario Minister of Lands and Forests, has announced that his department has allotted pulpwood limits to the Great Lakes Paper Co., of Fort William, the Thunder Bay Paper Co. and the Provincial Paper Mills, of Port Arthur, and the Nipigon Fibre Co., of Nipigon, sufficient to increase the quantity of newsprint manufactured at the head of the Great Lakes from 215 to 1,525 tons per day, with an increased pay roll of 9,680 men, who would sustain a population of over 40,000 people.

The amount of the capital expenditure in power, pulp and

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Write for the Ryerson Journal and Stock List —the "Key" to Immediate Steel

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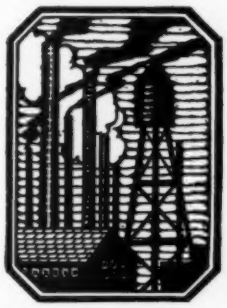

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When "His Mark" was good form

Even as recently in history as the settlement of America, it was considered no disgrace to sign a contract with a "mark". Writing was a fine art, confined to a few scriveners, who "sucked their sustenance, as certain sick people are said to do, through a quill."

Yet today even the day-laborer declares his income over his own signature, and immigrants from the most backward sections of the globe attend night school to form their names with pencil and pen. What was once a special art has become a common and unnoticed accomplishment throughout civilization.

When writing paper was rare the average man had no particular need of knowing how to write, for he had nothing to write upon. When means were invented for making large quantities of paper cheaply, writing came into common experience and "his mark" went out.

Hammermill Paper Company

Erie, Pennsylvania

paper would be $75,000,000 and the cost of power development for the Twin Cities alone would be $34,000,000. The Hydro-Electric Power Commission will have to go beyond the height of land for water for power and divert streams now flowing into Hudson's Bay, into Lake Nipigon.

Mattagami Contracts for Pulp Wood

Impetus was given to the pulp wood business in and around Cochrane, recently, when the Mattagami Pulp and Paper Company, of Smooth Rock Falls, contracted for 60,000 cords of pulp wood at an average of $8.25 per cord, delivered at the mill. This means a price to the settler of about $5.35 a cord, delivered at the car.

The Spruce Falls Co., of Kapuskasing, are understood to be prepared to contract for a similar amount. The pulp wood will be cut mostly between Cochrane and Kapuskasing on the line of the Transcontinental Railway.

Thorold Mill Being Put into Shape

According to J. A. McLellan, manager for the Davy Pulp and Paper Co. which has taken over the old Foley-Riegler mill at Thorold, 18 hands are now being employed for making dry wood pulp, of which 12 tons are being turned out per 24 hours. A lot of work on the old mill has yet to be done, and new machinery is being installed. The full production of about 16 tons of dry pulp per day is expected to be reached about the beginning of next year. The mill was taken over from the Beaverboard Co.

The old Battle Mill has also been taken over, and will be fitted up as the Foley-Riegler mill is at full production, and about 25 to 30 men will be employed. Considerable trouble was experienced owing to the low water conditions in the old Well and Canal.

It is expected that with the completion of the power plants at Frankford and Campbellford of the Quinte and Trent Power Co., a subsidiary of the Canadian Paperboard Co., the power costs of the latter will be reduced by $3.00 per ton of pulp produced.

The Fort Frances Pulp and Paper Co. have placed an order with Pulp and Paper Mill Accessories, Ltd., for a Ljungstrom air preheater to operate in conjunction with an 800 horse power B. & W. boiler. Overall efficiency of boiler, stoker and preheater will be 85 per cent, with a fuel saving of 13.5 per cent effected by the air preheater at 300 per cent rating, at which the boiler and preheater will be normally operating.

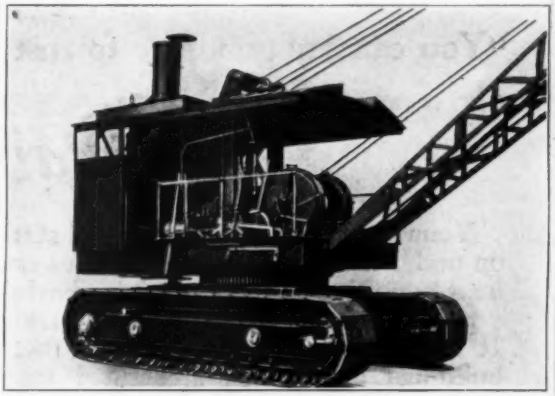
At a meeting of the shareholders of Kaministiquia Power, held in Montreal on September 30th, the sale of the company's assets to a new company of the same name which will be organized by Fort William Paper Co., was confirmed and ratified.

Provincial Paper Mills, Ltd., Toronto, through the co-operation of the Canadian trade commissioner in Mexico, have established a selling connection in Mexico for certain qualities of papers made at the company's Port Arthur mill. It is believed that Mexico will furnish a fairly good market for Provincial products.

The Beaver Wood Fibre Co., Ltd., Thorold, report that they are two months ahead of their schedule in installing their newsprint machine, a 166-inch Pusey & Jones. The machine is now practically ready for operation. John Ball, formerly with the Bathurst people, is the manager.

In the month of July the steam plant crew of the Abitibi mill headed the list for overall efficiency of steam plants in Canadian and American news mills with a percentage of 79.2. In August they bettered this running, attaining 79.7 per cent, but finished in second place on account of one of the small mills in the States having an efficiency of 81.4 per cent.

Members of the International Joint Waterways Commission have completed hearings on the application of the Fort Frances Pulp and Paper Co. for permission to construct dams



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Officials of the Lock Joint Pipe Co., who are using several "AMERICAN" Locomotive Cranes on Continuous Chain Treads have stated that they find them more rugged and dependable than the ordinary caterpillar construction.

If you have hesitated to buy a heavy crane on caterpillar type treads because you have been afraid that the treads would not stand up to the service, it is worth your while to look into the merits of "AMERICAN" Locomotive Cranes mounted on Continuous Chain Treads. Write today for catalog.

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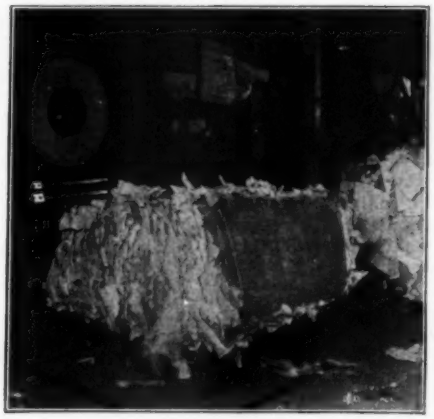
Here is what Mr. Sidney Frohman, President of Hinde & Dauch Paper Company, says:

"During the past ten years you have supplied a number of scales for various purposes to be used at our several plants, and within the past 6 or 7 years two Ball Bearing Motor Truck Scales and one Howe Railroad Track Scale.

Your equipment has been satisfactory and apparently measured up to our requirements. We have had little occasion to cause readjustments. Considering the service, *are very much pleased* with the installations, and endorse their use by others.

Regardless of the type of scale you need, Howe makes them all—a Howe Ball Bearing Scale will give longer life, more correct weighing and freedom from repairs and maintenance expense.



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4

and raise levels of certain boundary waters between the United States and Canada. According to the testimony of W. T. Moddie, division superintendent at Port Arthur for the Canadian National Railways, the raising of the water levels would require raising the tracks involving a total cost of almost $1,000,000. The commissioners decided that the entire project will be placed in the hands of United States engineers for study and that no decision on the application will be made until the engineers complete their report.

J. H. Matheson, eastern representative of Buntin-Reid Company, Toronto, has resigned his position and left a short while ago to join his father who is in business in the United States.

H. A. Miller, secretary and manager of the Continental Paper Products, Ltd., Ottawa, received the congratulations of a large number of friends in the paper trade on the occasion of his marriage to Miss Dwyer, a popular young lady of Clarenceville, Quebec.

Provincial Paper Mills have erected a new acid tank at their Port Arthur mill and are making considerable improvements to their bleaching plant.

Forest Service Co., Ltd., Ottawa, is a newly formed organization which has been granted a Dominion charter to conduct timber cruising, scaling, pulpwood operations and manufacture of logs and lumber in all branches. The capital stock is $20,000. H. H. White of Pembroke, Ont., is one of the incorporators.

NOVA SCOTIA

Grand River Project Taking Shape

Efforts to establish a pulp and paper producing plant on the Grand River are reported as progressing satisfactorily. An attempt is being made to whip the preliminary plans into shape that will allow the start in construction early in the spring. Sydney parties are endeavoring to finance the new plant's construction solely in Cape Breton. Whether this is possible or not will not be known definitely for some time. Tentative plans of the promoters call for a daily production of between 50 and 75 tons of bleached and unbleached pulp, with the installation of at least one newsprint machine.

Operation would be by hydro-electric power secured from the falls on the Grand River, and the plant would be built at or near Loch Lomond, in the midst of a large tract of pulpwood lands. It is intended to take over the holdings of a number of timberland owners. Several sites have been looked over, but none has been chosen definitely. It is not found possible to finance the project solely with Cape Breton capital, indications are that Ontario, Quebec and United States capital will be solicited.

Co-operation of the Milton Board of Trade has been offered to F. J. D. Barnjum, president of the Barnjum Paper Co. and the MacLeod Pulp and Paper Co., in his plan to erect a big paper mill at the watershed of the Mersey River. This action of the Milton commercial body followed that of the Liverpool Board of Trade. The new plant will be on the dividing line between Milton and Liverpool and a few miles from the pulp mills of the MacLeod Pulp and Paper Co., at Cowie Falls and Rapid Falls, also on the Mersey River.

N. S. Pulp Shipped to U. S. by Water

The steamship "Facto" has been chartered by the A. P. W. Pulp and Power Co., Ltd., to transport pulp from Sheet Harbor to Albany, and will likely maintain a regular service between Sheet Harbor and Albany through the winter. Heretofore the pulp carriers have been unloading at New York and the pulp has been sent on to Albany by rail. But the Facto is docking in Albany.

Steamers are being utilized to a greater extent than ever to carry pulp from the Maritime Provinces to the United

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STRONG GRIP LONG LIFE

Production Costs Reduced

THE mechanical engineer of a southern paper mill is "certainly pleased with the performance" of an installation of RHOADS WATERSHED TANNATE LEATHER BELTS on a group of barking machines.

The report says: "They carry the load without slipping, and after three months' running have not stretched sufficiently to require cutting."

Special mention is made of a large saving per day in their production costs since the installation of the Watershed Tannate Belts.

They increased the output and it is output that counts.

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TRAVELING CRANES

Reading Cranes are the result of 25 years' experience in the manufacture of hoisting machinery and are built for severe service.

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No matter what the conditions, whether speed is high or low, for any kind of load—if a FLEXIBLE COUPLING is the solution to your problem, we have the proper type for your particular drive. Put it up to our Engineers to make the selection. *SEND FOR BULLETIN No. 168.*

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States. In addition to the service between Sheet Harbor and Albany, the Steamer Bornholm is transporting pulp from the MacLeod Pulp and Paper Co.'s mills on the Mersey River to the Tidewater Paper Mills at New York, and the S. S. Sigdal loads pulp from the Clyde & Sissiboo Pulp and Paper Co. at Digby and Weymouth and brings it to New York.

The A. P. W. Pulp and Power Co. is to build two lookout towers on the company's woodlands adjacent to Sheet Harbor, one at Marinette and the second at Governor's Lake. They will be seventy-six feet high and made entirely of steel. They will greatly aid in the protection of the company's pulpwood limits and are expected to effect important savings of wood and money.

Gerald F. Murphy, formerly manager of the Maritime Freight Bureau at Sydney becomes traffic manager of the Newfoundland Power & Paper Co., and will be stationed at the plant at Corner Brook.

The Sheet Harbor mill of the A. P. W. Paper Co. is reported to be running at capacity, and operations are expected to continue steadily throughout the coming winter at that rate. The pier which has been under construction by the Dominion Government is completed, and shipments of pulp are being made without the necessity of lightering the cargoes.

Production and shipment of 3,000 tons of pulp by the mill at Caledonia, Queens County, up to the middle of September, this year, constitutes the company's record of production for any year of operations. During the low water period, which necessitated suspension of grinding, the mill has been undergoing repairs and the installation of better facilities for operating.

The death occurred at Truro, early last month, of Thos. G. McMullen, aged 81, lumber merchant. Mr. McMullen, who was one of the biggest shippers of lumber in the province, was a member of the Nova Scotia Legislative Assembly from 1897 to 1901.

NEW BRUNSWICK

Government Helps Wood Industries

Hon. J. B. M. Baxter, premier of New Brunswick, in an address before the New Brunswick Retail Merchants' Association at their recent convention, announced a reduction in stumpage on soft wood to $2.50 per thousand feet, to operate for a year to relieve conditions which are paralyzing the lumber industry, particularly on the North Shore.

Those who will form the new New Brunswick Hydro Electric Commission he named as follows: Hon. E. A. Reilly, K. C., of Moncton, chairman; J. D. Palmer, Fredericton; E. A. Schofield, St. John; A. D. Ganong, St. Stephen, and F. J. Robidoux, Shediac.

Mr. Baxter said that New Brunswick would retain its own lumber scale rather than adopt that of Quebec; that the sawmill industry would in time become extinct, to be supplanted by the pulp and paper industry; and that the development of the water powers at Grand Falls would be carried out regardless of politics, with no direct or indirect taxation to people, nor the loss of one dollar.

When the litigation between the Inglewood Pulp and Paper Co. and the New Brunswick Electric Power Commission will end is something for the future to decide. For about five years this suit has been hanging fire. Hearings were held in St. John, N. B., and Moncton, N. B. In the balance is a claim for $840,000. The next court session affecting this long drawn out case is slated for some time this month.

The Madawaska, Me., mill of the Fraser Companies of Edmundston, N. B., will manufacture sulphite paper, absorbing the output of the Edmundston sulphite mill, with the exception of 100 tons a day, which will be marketed through the usual channels. The Governor and Council of the State of Maine have authorized the Company to install a double pulp line on

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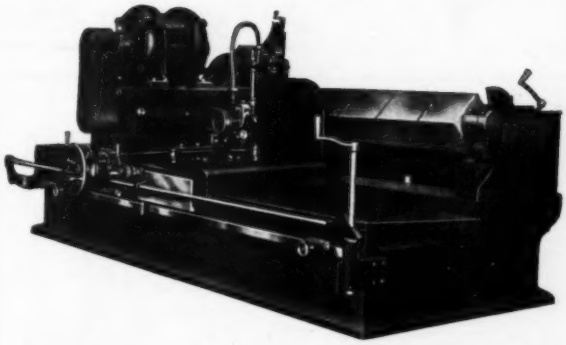

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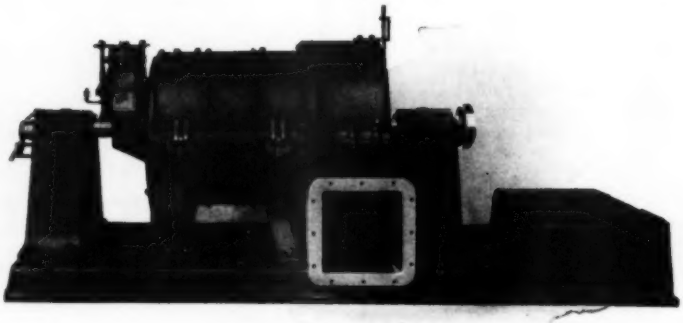

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A Type for Every STOKER Need

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This regulator controls both live and exhaust steam for any purpose where steam is used, or it will control the direct steam when used alone. Is unlike, both in construction and operation, any device that has heretofore been designed for this purpose. Controls not only temperature of the dryers when paper is running over them, but maintains the same temperature whenever there is a break in the paper. This machine is most sensitive to any change in temperature of dryers, yet it has been found to be perfectly reliable and what is more, is not continually getting out of order.

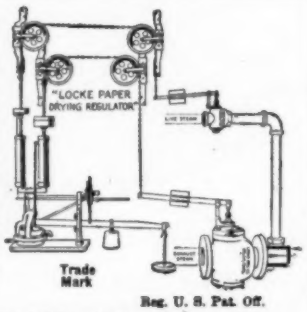

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Fig. 192

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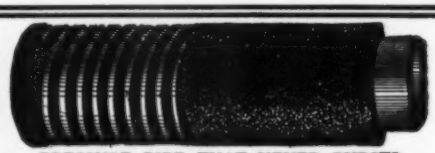

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the international bridge over the St. John River, by means of which slush stock will be pumped directly from the pulp mill on the Canadian side to the paper mill on the Maine side.

BRITISH COLUMBIA

Powell River Construction Proceeding Apace

According to the Powell River "Digester" for September, No. 4 penstock will shortly become another highway for the transportation of power to the new grinder and generator turbines. Excavations for the new grinder room are finished, the forms are about half completed and are being filled with concrete as fast as they can take it. The draft tubes, which will be attached to the receiving ends of the big turbines, are in place and are finished. The trestle for the waterfront railway is nearly completed, and more than half the track is laid.

The sea wall west of the grinder room has been finished, and the fill has reached its ultimate level. The wall to the west of the wharf approach has also reached completion, and its fill is nearly all in place.

While excavating for the new machine room, workers of the Armstrong Morrison Co. brought to light a curiously shaped, primitive stone hammer, which presumably served as a tool and weapon for the members of the aboriginal tribes which roamed the Coast long before the encroachment of European civilization.

World Market Developed for B. C. Paper

British Columbia paper is selling on a widening market. It supplies Western Canada and a large part of the Pacific Coast States; 1,000 tons monthly goes to Buenos Ayres; several orders were recently sent to Havre, France, which, it is expected, will become a steady market. A market has now been opened at Antwerp. As a result of the new Canada-Australian trade treaty, paper manufacturers on the Coast are looking for a big demand from the market, which had hitherto been restricted due to a high import duty.

Among recent incorporations at Ottawa is that of the Canadian Scottish Paper Company, Limited, with a capital stock of 10,000 preference shares of $15 each and 10,000 shares of no par value, and headquarters in Vancouver.

Assets of the bankrupt Whalen Pulp and Paper Co. were offered at public auction by court order in Vancouver on October 30th and purchased by Robert Bone, Vancouver, manager of the Montreal Trust Co., for $4,000,000 on behalf of the holders of the first debenture issue. There were no other bidders. The plant of the concern at Ocean Falls, on the British Columbia Coast, 200 miles north of Vancouver, has been operated at a profit since it was taken over by a receiver.

Chicago financial interests, comprising, among others, Cyrus and Harold McCormick, of the International Harvester Company, have purchased the holdings of the Beaver Cove Lumber and Pulp Company, on Vancouver Island, B. C. It is planned to erect a modern sulphite paper mill, and utilize the big water falls on the Nippkish river to provide sufficient power for the entire plant.

Negotiations for the securing of the Pine Falls power site on the Winnipeg River from the Spanish River interests are under way by the officials of the Winnipeg hydroelectric system. The deal involves an ultimate expenditure of $7,000,000.

The Combustion Engineering Corporation, Ltd., Toronto, Canada, report having recently received orders for power equipment as follows: Port Alfred Pulp & Paper, Port Alfred, P. Q.—2 Type "E" stokers, class 9, size 9 ft. 8 in. for their 2 horizontal water tube boilers, 486 H. P. each, and 2 Detrick arches, size 9 ft. by 10 ft. 6 in. wide; Riordon Pulp Corp., Hawkesbury, Ont.—1 Type "E" stoker, class 9, size 12 ft. for their 600 H. P. boiler.

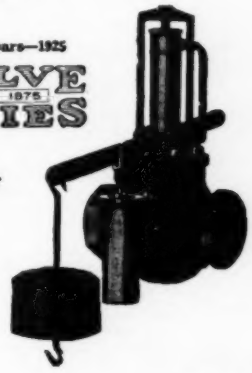
WHEN you need **one** superintendent you don't hire **two.** But—are you using 150 pounds of steam pressure when you need only 65? If so, you'd better let a Davis pressure regulator save the difference for you.

G. M. DAVIS REGULATOR CO.
414 Milwaukee Avenue,
Chicago, Ill.

1875—Valve makers for fifty years—1925
DAVIS VALVE SPECIALTIES
STEAM SAVERS SINCE 1875

Davis Pressure Regulator

Piston type with counterweighted lever control. Pressure is balanced by weight. Action is visible, and may be hand-tested by moving lever. No springs or toggles—no diaphragm to give way.

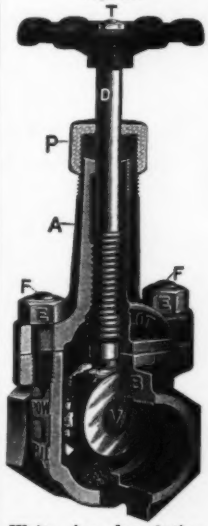


PI-11B-RTG

POWELL VALVES

"Pilot" Gate Valves

Fig. 460



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All iron or iron body with steam bronze trimmings. Simple in construction.

Working Pressure up to 125 lbs.

Economical and Reliable

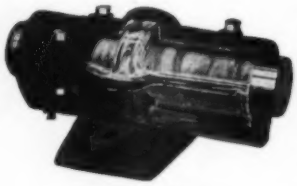
Avoid disappointment in Valve Service by specifying POWELL VALVES

The Wm. Powell Co.
214 Draper St.
Cincinnati, Ohio

" HILL CLUTCH "
MILL EQUIPMENT

Friction Losses Conquered

"CLEVELAND TYPE"
Collar Oiling Bearing
(PATENTED)



(Sectional View)

Showing the positive oiling system that never fails—that produces the almost frictionless oil film. Furnished in all styles of Rigid and Ball and Socket Mountings.

The perfect bearing for power transmission thru line shafting. Anti-friction in the true sense of the word.

The constant and steady **oil circulation in four** even streams maintains an ***Unbroken Oil Film*** on which the shaft rides—free from all metallic contact. No wearing surfaces to waste power.

Unbelievable economies effected thru saving in power, oil consumption and maintenance. An investment that pays dividends thru long years of uninterrupted service.

Easy to install. The ***Split Feature*** is a tremendous advantage over other anti-friction bearings of the solid type which necessitates stripping of shafts.

Approximately 600 Paper Mills use the "Cleveland Type" Collar Oiling Bearings, including International, Riordon, Kalamazoo Vegetable Parchment, Bogalusa, Abitibi, A. P. W., Arrowhead, Chicago Coated, Crown Columbia, Detroit Sulphite, Eureka, Fulton, Hammermill, North Star, Jaite, Kimberly-Clark, Lowe, Mississquoi, Newton, Ontonagon, River Raisin, J. & J. Rogers, Sears-Roebuck, St. Regis, Hanna, West Virginia, etc.

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The HILL CLUTCH MACHINE & FOUNDRY CO.
Power Transmission Engineers

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Pickles' Patent
Automatic Steam Regulator
FOR
Paper Making Machines

Which absolutely control the drying of the sheet. Installed on sixty days' trial

W. F. PICKLES **Buckland, Conn.**

GRANT GEAR WORKS

Estimates and gear advice promptly and cheerfully given

Send for Our Catalog of Stock Gears

Office and Works
Second & B Sts., **Boston, Mass.**

Molybdenum **Steel Balls**
for Severe Service

Ball Bearings, under certain operating conditions, subject the balls to a slight spinning action. Molybdenum Steel Balls are well adapted for this peculiar condition, due to the extreme toughness of Molybdenum Steel which gives the balls a cleaner and denser structure and consequently a greater and more uniform hardness. Result—increased load carrying capacity and longer bearing life.

Do you need this added capacity in your equipment?

MARLIN-ROCKWELL CORPORATION
Gurney Ball Bearing Division
JAMESTOWN, N. Y.

GURNEY
BALL BEARINGS

18238

Michigan News

November 1, 1925.

Allied Mills to Operate Wolverine Plant

The plant of the Wolverine Paper Company, which was recently sold to the bondholders for $60,000 as a result of the receivership sale, has been acquired by the Allied Paper Mills, who will operate it for a period of six months under a special agreement concluded with the bondholders, according to A. G. Gilman, president of the Allied Paper Mills.

The Wolverine plant is in excellent physical condition, having been kept up to a high point of efficiency. It is equipped with one 96-inch Fourdrinier and one 88-inch single-cylinder. There are ten 1,000-pound beaters and three Jordan engines.

In taking it over, President Gilman says the product of the Wolverine plant can easily be absorbed by the Allied coating mill in Otsego and it is likely that the Wolverine output will be coated raw stock from now on. "We will do away with the wax paper division entirely," said Mr. Gilman, "as that is a line foreign to our business."

The Allied Paper Mills has completed some important power improvements in the Bardeen Division in Otsego. The new power plant is now in operation, both Bardeen mills, Nos. 1 and 2, being driven from the new unit. This will result in the scrapping of the old power unit at Mill No. 1 and the retention of the power division at Mill No. 2 as a reserve source of supply.

The new plant is equipped with three Wickes water tube boilers, each rated at 150 horse-power. It also has the most approved type of stokers and coal handling machinery. By the rebuilding of the dam at Otsego, there has been a large increase in the water power capacity, making it possible to install new generators.

The King Division, in Kalamazoo, has had an important improvement made in the rebuilding of the No. 3, 140-inch Fourdrinier. The machine has been lengthened by the addition of 9 dryers and rotary screens, which permit a decided speeding up in production. The work of rebuilding was done by the Beloit Iron Works, Beloit, Wis.

A much appreciated improvement at the King Division is the new park facing Lake Street. It has an area of approximately two acres, and only worked on the last two months, already boasts an unusually fine lawn. A large plot of ground immediately at the rear of the new park has been leveled and will be made available for parking space.

Meeting of Michigan Superintendents

Those who attended the October meeting of the Michigan Division of the American Pulp and Paper Mill Superintendents' Association, received good information when Elbert Milham, head of the technical division of the Bryant Paper Co., gave them a talk on "Recent Improvements in the Handling of White Water." Michigan paper mills are much interested in the subject of stream pollution, since there have been stringent laws passed of late in regard to this and several suits are now pending in the Michigan Supreme Court.

Practically everyone present took part in the round-table discussion following Mr. Milham's address. Those present were: E. H. Gilman, Elbert Milham, N. Collignon, Otto Fisher and Alfred Bryant, of the Bryant Paper Co.; Herb De Young, George H. Pountain, W. M. Carroll and John Spoor, of the Allied Mills; John Jagers, C. B. Smith and M. Redmond, of the Kalamazoo Paper Co.; E. F. Yahnke and A. E. Woolam, of the Standard Paper Co.; Cyrus E. Frye, A. W. Field and A. M. Vanderburg, of the Lincoln Paper Mills; Otto V. Comstock, of the Hawthorne Paper Co.; Everett Hays, Bradford Paper Co.; Jacob Parent, Western Board and Paper Co.; W. H. Sievert, Michigan Carton Co.; W. H. Yule, of F. C. Huyck & Sons; S. Goldman, English China Clay Sales Corporation and C. J. McMahon, Paper Mill Supply Co.

Clay Puzzles Up to the U. S. Government

It is no new thing to have foreign ships dock at Great Lakes ports with cargoes for the Michigan Paper Mills. Toledo has been the favorite port of entry for the pulp from Sweden to the board mills at Monroe, Mich., and South Haven

American Made Cotton Transmission Rope of the Highest Quality

For Main Engine and Fourdrinier Drives

Light, Flexible, Durable,
LAMBETH,
the "Natural Transmission," delivers continuous power after years of use

ALSO, EGYPTIAN ROPE FOR SHEEHAN CARRIERS

Lambeth Rope Corporation
Makers of Rope since 1891
New Bedford Massachusetts
Morey Paper Mill Supply Co., 99 Chauncy Street, Boston, Mass., Distributors to the Paper Industry

FALLS
TRANSMISSION MACHINERY
The Falls line is complete, containing appliances for the efficient and economical transmission of power in any industry either by belt or rope.
More than half a century of specializing experience is honestly built into correctly designed units. Engineering service is rendered gratis.
Our 300 page catalog-handbook 18-B will be of value. Write for a copy today.
The Falls Clutch & Machinery Co.
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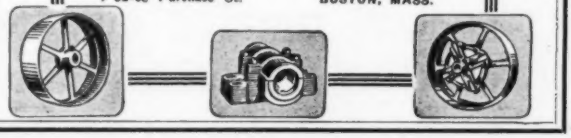
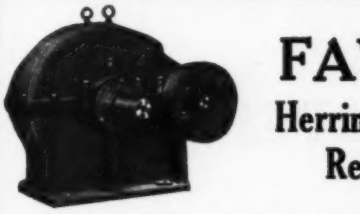




FAWCUS
Herringbone Gear Reductions

They increase production, save labor and decrease wastage on Calenders. Write for literature. Special Machinery—Couplings—Gears.

FAWCUS MACHINE CO., Pittsburgh, Pa.
2819 Smallman St.

Morey Paper Mill Supply Company

99 Chauncy Street BOSTON, MASS.

Vulcan TRADE MARK

DRYER FELTS

BRANDON 3-PLY "TRI-UMPH" AND STANDARD WARP

Deckle Tape and Cutter Webbing—Cotton and Rubber Belting—Enamelled, or Rubber, Fourdrinier Aprons—Rubber Splicing Tissue—Neutral Soap Powder—Dryer Felt Sewing Twine —Superheat Asbestos Packing—Rubber Sheet Packing—Steam and Water Hose "Lambeth" Cotton Transmission Rope

RESILIENT RUBBER ROLLS

THAT ARE SPRINGY BUT NOT SOFT
GIVE FELT ECONOMY AND
STAND UP IN SERVICE

Made By

STOWE & WOODWARD COMPANY

The Rubber Roll Makers NEWTON UPPER FALLS, MASSACHUSETTS

THE DRAPER FELT

Unexcelled for strength, openness, resiliency, and general running qualities. Made to meet the most exacting conditions on all types of machines and all kinds of papers. Only one grade and that the highest.

Made by

DRAPER BROTHERS COMPANY

CANTON, MASS.

Woolen Manufacturers Since 1856

REPRESENTATIVES

L. H. BREYFOGLE, Kalamazoo, Mich. INTERNATIONAL TRADING CO., Philadelphia, Pa.

has been the port where all the clay shipped from England for the local coating mills has been unloaded.

Several weeks ago, the "Errington Dunsford" arrived at South Haven with a cargo of clay from Cornwall, England, for the local paper mills. Owing to a misunderstanding, the "Errington Dunsford" was delayed in port and a damage for $1,500 demurrage has been filed by the British shipping interests with the Department of State for loss sustained.

W. E. Knight, consignee and representative of English clay mines in Cornwall, is authority for the statement that the whole case involves so many disputed points and so many angles that it can now be settled only through the action of national authorities. He says the captain of the Errington Dunsford is directly charged with violating United States quarantine provisions and that customs officials so interfered with unloading the ship at South Haven that demurrage charges of between $1,400 and $1,500 have accumulated and must be settled. Mr. Knight is in receipt of a communication from the Associated Shipping interests of Montreal, asking for a complete statement of the disputed points in the proposition.

In reviewing the controversy, Mr. Knight said, "South Haven wants to establish that as a port of entry and see the arrival of this ship as the first step in such a move. A delegation of South Haven business men went to Detroit to see where the trouble arose. It is a matter of considerable business importance to that city to be made the unloading point for all clay consigned for the Kalamazoo mills. It means $2,000 in wages for dock hands every time a ship is unloaded and in addition living expenses for the officers and crew of a steamer."

Kalamazoo Cost and Tappi Members Hold Joint Meeting

Members of the local division of the Cost Association of the Paper Industry and those of the Technical Association of the Pulp and Paper Industry, held a joint dinner session on Monday evening, October 26, at the Park American Hotel, Kalamazoo. Homer Oliver of the Allied Paper Mills gave a talk on "Co-operation Between Cost and Technical Departments." Fred C. Clark of the Hawthorne Paper Company spoke on "Handling and Cost of Raw Materials." Both talks were thrown open to general discussion.

Elevator Kills Rex Paper Employee

Walter Carr, caretaker for the last five years at the Rex Paper Company's mill, Kalamazoo, was killed Friday morning, October 30, when a freight elevator in the mill fell from the second story to the foot of the shaft, a distance of about thirty feet, crushing him as he was cleaning out the pit. He leaves a widow but no children.

Employees of the mill had planned to hear an address that afternoon by a State representative of the Safety First campaign in one of their general mass meetings held at regular intervals for this purpose.

W. E. Knight, western sales representative of immense clay mines in Cornwall, England, will make his permanent home in the West. He has leased a furnished home in South Haven for the winter months and will soon be joined by Mrs. Knight and children, who are westward bound from New Jersey.

Mr. A. H. Dwight, president of the Hawthorne Paper Co., Kalamazoo, is confined at his residence in that city, a victim of apoplexy. Mr. Dwight was stricken at his Gun Lake summer home where he had gone to pass the week end. Late reports state that he is recovering and out of danger.

The Wickes Boiler Company, of Saginaw, Mich., announces the election of Mr. Edward B. Wickes as vice-president and the appointment of Mr. Henry E. Aldrich as general sales manager of the company.

Butler Paper Products Co., Toledo, Ohio, plan to erect a two-story building to be used for storage and distributing.

Progress in Paper Making

WITH progress in American paper making, we are concerned and connected. To commemorate the advances that have been made, the more important annals of the industry will be recalled from month to month in this space.

Improvements in Washing Engines

In 1843, James Phelps of West Sutton, Mass., made improvements in the washing engine which consisted of an adjustable rotating water elevator and strainer which could be raised or lowered in the vat. Also, a rotating prismatic screen, or strainer, for straining the water from the paper stock in the vat of a washing or beating engine, in combination with devices for discharging the strained water. This proved more efficient than the cylindrical screen, and was easier to repair.

Established 1842

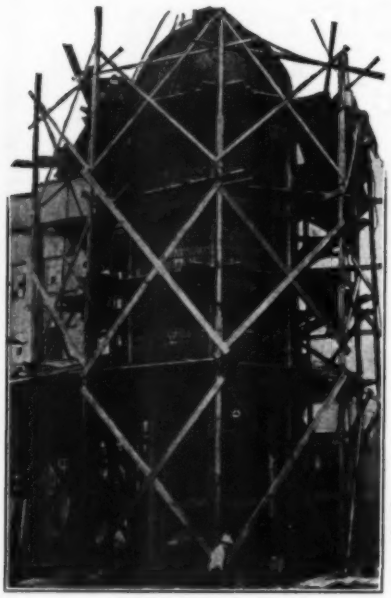
Cheney Bigelow Wire Works

Experienced and Progressive

Fourdrinier and Cylinder Wires
Dandy Rolls and Cylinder Moulds
made and recovered

SPRINGFIELD, MASSACHUSETTS

For Profitable Production!



EQUIPMENT that gives short, jerky, hit-and-miss production takes back in repairs what it turns out in profit.

Demand of your equipment long, uninterrupted, dependable service. Install Manitowoc Incinerators, Digestors, Diffusers, Tanks, Disc Evaporators, Barking Drums, Refiners, etc. Long have they proven their worth in mills the country over.

Let our engineers design time-saving equipment for your plant—equipment that will give generous production constantly, year after year.

Manitowoc Engineering Works

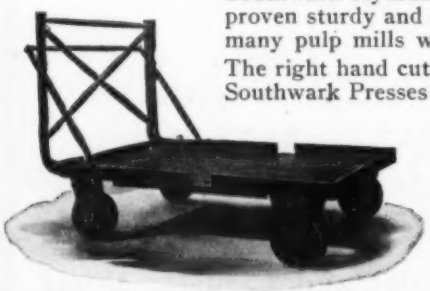
Manitowoc, Wisconsin

MANITOWOC

SOUTHWARK HYDRAULIC PRESSES

for Pulp, Sulphite, Baling, Etc.

HYDRAULIC PUMPS, VALVES, FITTINGS, SHOCK ABSORBERS, PULP TRUCKS, ETC.

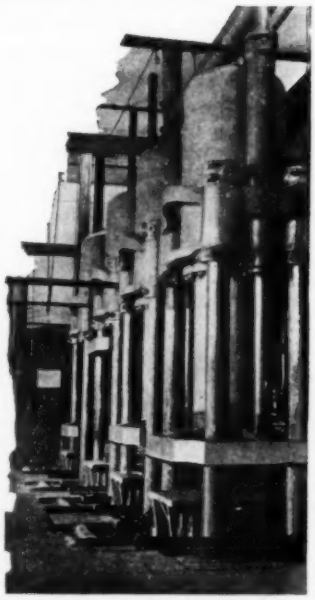


Southwark Pulp Truck, for Use with Presses Shown at the Right. Saves Time and Labor

Southwark Hydraulic Presses for dehydrating pulp have proven sturdy and efficient machines in every one of the many pulp mills where we have installed them.

The right hand cut shows an installation of four 600-ton Southwark Presses in a large pulp and paper mill. These presses are designed for use with Southwark Pulp Trucks, the trucks are loaded and run under the press, the pulp being compressed directly on the truck.

This feature gives fast operation, saves labor and eliminates curbs, boxes or other containers on the press.



Four 600-Ton Southwark Pulp Presses, Minnesota & Ontario Paper Co., International Falls, Minn.

SOUTHWARK FOUNDRY AND MACHINE CO.

AKRON, O.
100 E. South St.

400 Washington Ave.
PHILADELPHIA, PA.

CHICAGO
343 S. Dearborn St.

Wisconsin News

November 1, 1925.

Agreement Reached in Public Utility Display

An agreement has been reached by the Northern Paper Mills of Green Bay, the Wisconsin Public Service Corporation of that city and the Wisconsin Gas and Electric Company, whereby the paper mill and the W. G. & E. will be unhampered in their joint project of extending a high tension power line from Green Bay to Amberg. From Amberg to White Rapids, the paper mill will use the line alone.

The Wisconsin Public Service Corporation opposed the project on the grounds that the W. G. & E., a subsidiary of the North American Company, was encroaching upon illegal territory contrary to the state public utilities act. Courts in Brown, Marinette and Oconto counties rendered judgments in favor of the condemnation project. After that the W. P. S. commenced certiorari proceedings, but dropped all pending litigation with the completion of a settlement between all three parties concerned.

Under the terms of the agreement, the W. P. S. will not oppose the power line project as long as interchange of power is resorted to only in case of emergencies. In Green Bay the paper mill must buy power only from the W. P. S. With the completion of this settlement, there remained only about 10 per cent of the total distance to be purchased for the line.

New Power Plant for Kimberly Mill

Kimberly-Clark Company, of Neenah, is installing one of the most modern, low-head, hydro-electric power plants in the country at its mill in Kimberly.

The old power plant has become somewhat antiquated, and the company set about to rebuild it entirely and provide new equipment. The equipment consists of three 960 horsepower water turbines to which are direct connected three 900 K. V. A. generators with direct connected exciters.

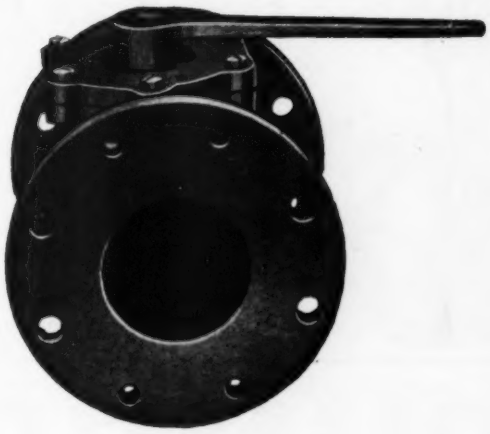
The concrete work has been completed and the turbines are being installed. The company plans to have the new plant in operation by the first of the year. The general construction was done by the C. R. Meyer & Sons Company, of Oshkosh, and the turbines and generators are being furnished by Allis-Chalmers Company, Milwaukee.

Tomahawk Mill to Install Settling Pond

An agreement has been made between Tomahawk Kraft Paper Company, of Tomahawk, and State Assemblyman S. G. Gwidt, to install a settling pond which has been designed by Mr. Gwidt for the purpose of disposing of paper mill waste. The latter was formerly a conservation warden, and this year assisted the state conservation commission in its investigation of pollution of fish streams. Mr. Gwidt maintained pollution can be eliminated. The pond is to have gravel banks with a trench dug around to carry away the water which filters through the banks. S. B. Bugge, general manager of the mill, says his concern is willing to co-operate with any plausible means of remedying the situation.

Ninety members of the maintenance and construction department of the Niagara mill of the Kimberly-Clark Company were feted at a banquet in Kimblark Inn in that city last month in honor of the three hundredth anniversary of the "maintenance and construction Safety Man." It is the only department of the mill to have reached this record. Each man was presented with a five dollar bill, according to a standing custom. Pictures of these men were on display at the National Safety Congress in Cleveland last month.

Two men were injured recently while working on the new dam of the Nekoosa-Edwards Paper Company, on the Wisconsin River, near Nekoosa, which is being built by C. R. Meyer & Sons Company, of Oshkosh. LaVerne Smith lost his balance and fell through the flume upon the rocky bed of the tailrace, fracturing three ribs, one of them puncturing a lung. Willis Barker suffered a fracture of the skull when hit by a large rock from a discharge of dynamite. Building



Built for Your Purpose!

THE Barker Quick Opening Stock Valve meets all the requirements you place on it—with features which all mill men have been seeking.

Simplicity and strength are both present. This valve is built on an entirely different principle from other gate valves, in that a straight bronze plug is used instead of a gate, with a cast-iron body designed to reduce plugging to a minimum. Has no bonnet to leak. Valve is furnished with a long handle to open and close, with sufficient leverage to shear off ordinary obstruction without using a piece of pipe. Valves may be placed in any position.

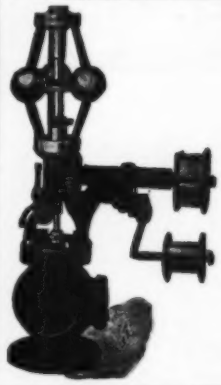
The Barker Quick Opening Stock Valve **does not require cleaning** after each different color or grade of stock has passed through. The many repeat orders being received by us are the best proof of satisfaction.

Install this valve and note the difference.

GREEN BAY BARKER CO.

Green Bay, Wisconsin

Makers of the famous Green Bay Barker



How Much *Paper* Are *You* Losing Because of Uneven Thickness?

During the past three years we have developed wide experience in building Governors for Engines and Turbines in Paper Mill service, resulting in uniformly thick paper, and a considerable increased production.

Catalog 32 on request.

THE PICKERING GOVERNOR CO.
Portland, Conn., U. S. A.

PUMPS

INDUSTRIAL—AGRICULTURAL—MUNICIPAL—RESIDENTIAL

A Type for Every Service

THE GOULDS MANUFACTURING COMPANY
SENECA FALLS, N. Y.

GOULDS

MAGIC BOILER PRESERVATIVE

"The Pioneer Boiler Treatment"

Positively removes and prevents scale, stops minor leaks, pitting and corrosion

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27 South Clinton Street, Chicago

148-156 Spear St.
San Francisco

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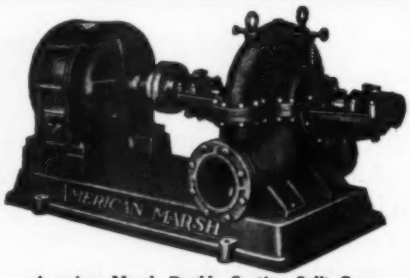
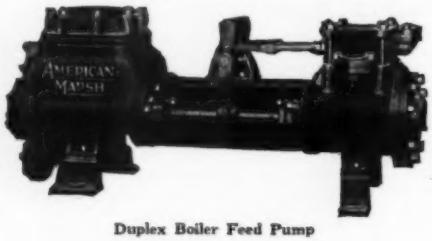
New York City



American-Marsh Double Suction Split Case



Duplex Boiler Feed Pump

Centrifugal
Duplex
Simplex

AMERICAN-MARSH PUMPS

Pumps of Tested Quality

For more than thirty-five years American-Marsh Pumps have been built up to a high standard of quality. This quality stood the test of time and today American-Marsh Pumps are recognized for their sturdy construction, long service and economical operation.

Because of this quality feature you are certain to get the utmost in pumping efficiency from American Marsh pumps.

The Line Includes

Boiler Feed Pumps
Wet and Dry Vacuum Pumps
Bilge Pumps
Suction Box Pumps
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Paper Stock Pumps

Send for Bulletins

AMERICAN STEAM PUMP COMPANY

Chicago Office
926 Monadnock Block

Battle Creek, Michigan

New York Office
17 Battery Place

of this dam will impound a lake two miles long and a quarter of a mile wide. It will be stocked with fish. The dam is being built to supply the Port Edwards mill with pure water for paper manufacture.

About thirty manufacturers and jobbers of tissue paper from various sections of the United States attended the convention of the Tissue Paper Manufacturers' Association which took place at Green Bay on October 9. Professor John R. Commons, economist of the University of Wisconsin, gave an address at the convention banquet. Judson G. Rosebush, general manager of the Northern Paper Mills, Green Bay, spoke on labor problems. While in Green Bay the visitors inspected the three tissue mills of that city.

Walter Alexander Presents Park to Wausau

The city of Wausau has been made the recipient of a beautiful park donated by Walter Alexander, president of the Wausau Paper Mills Company. The park is really an addition to another which Mr. Alexander donated to the city about ten years ago. The spot was named McIndoe park in honor of Mr. Alexander's uncle, the late Senator W. D. McIndoe, with whom Mr. Alexander made his home in his youth.

A great amount of filling in was necessary to improve the park addition. With the aid of a landscape architect, the donor converted this site into a gem with fine shrubbery, grassy lawns, flower beds and fish pounds.

The John Strange Paper Company, of Menasha, has added another elevator to its warehouse and raised the roof of the machine room of the paper mill. To provide more room for the waste paper basket department, the John Strange Pail Company is building a two-story addition to its west wing.

The employees of the Kimberly mill, of the Kimberly-Clark Company, have been making wide use of the mill library service. It is the purpose of this department to get as many workmen as possible to make free use of the trade literature which it has on file. To date it has catalogued more than 6,000 articles on paper manufacture. Every conceivable phase of the industry is touched upon in these various clippings.

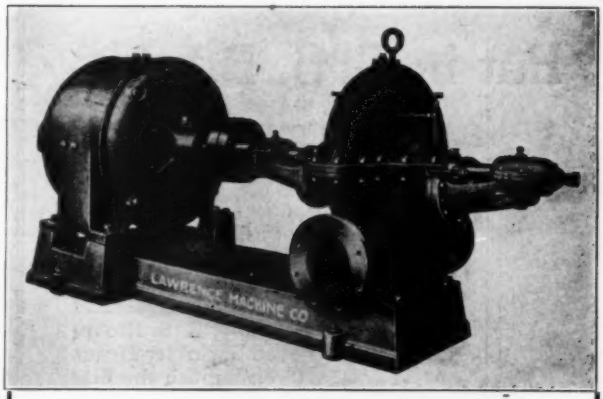
George A. Whiting, Neenah and Stevens Point paper manufacturer, who recently donated an athletic field and field house to Lawrence College of Appleton, early last month entertained about thirty members of the Delta Sigma Tau fraternity and their pledges at a dinner in Whiting Hotel in Stevens Point. While there the students were conducted through the Whiting-Plover paper mill, where they learned many interesting things about the manufacture of paper.

Wisconsin River Paper and Pulp Company will enlarge and rebuild its dam extending across the Wisconsin River north of the Whiting-Plover Paper Company dam in Plover. The former has filed a petition with the State railroad commission for permission to make the improvement. A public hearing on this matter has been set for Nov. 12 at Madison. The increased elevation of the dam is for the purpose of replacing antiquated pulp grinding machinery and providing greater power.

The Lakeview Paper Company mill at Neenah was forced to shut down a few days recently by a breakdown in the blower connected with the boiler.

An old bridge which has outlived its usefulness at its present location near the Appleton Machine Company is to be moved to extend over a tailrace at the Telulah mill of the Fox River Paper Company, by order of the Appleton city council. The bridge is used very little at its present site and is not considered necessary, but the structure is still in good condition, according to the advice of engineers. At its new place, it will give better fire protection for the Telulah mill.

The extent to which the motor vehicle license bureau of the Wisconsin Secretary of State's department uses paper is seen from the fact that this year it will need two carloads of paper,



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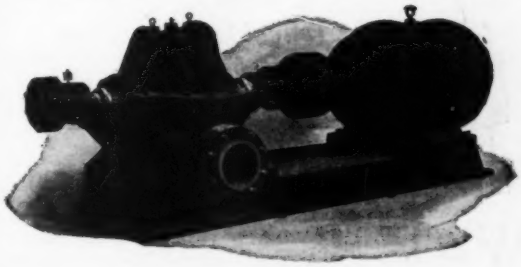

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envelopes and cardboard to register and title the automobiles of this state, according to a statement by Secretary of State Fred R. Zimmermann.

The old historic Winnebago mill of Neenah, one of the first paper mills of the Fox River valley, has been torn down to make room for the Bergstrom Paper Company warehouse. The old mill, formerly the property of Davis Brothers, was purchased by the Bergstrom interests when they built their new mill.

Suspicion of foul play which was attached to the sudden death in the Bergstrom paper mill at Neenah of Michael Kiefer, turbine engineer, was entirely removed a short time later when a post-mortem examination revealed that he had died a natural death. The autopsy showed a congestion in the lungs coupled with a slight heart lesion, which would have been sufficient to cause his death. A few weeks before his death Kiefer had passed a medical examination and no evidence of heart disease was reported.

Kimberly-Clark Co. Holds Meeting of Distributors

A large number of paper merchants and distributors attended the eighth annual convention of the Kimberly-Clark Company staff and its distributors in Neenah last month. These meetings are held every year for the purpose of aiding the merchants in promoting the sale of the company's products and of bringing about a closer contact between manufacturer and distributor.

The convention lasted two days. In addition to the business meetings, there were inspection trips through the mills and entertainment provided by the company.

E. J. Meyer, F. A. Beisel and John J. Meyer, of the Menasha Printing & Carton Company, Menasha, have returned from a visit to the company's new paper mill at Ashland, which they expect will be in full operation by Jan. 1. The plant was purchased only a few months ago and has been entirely rebuilt. One machine is in operation and is running on a three-shift schedule, and the other will be ready to start early in January. The company contemplates further expansion at Ashland next year in the erection of a bleaching plant.

Honors Appleton Citizen

Appleton, one of the smallest cities represented at two big conventions in Washington, D. C., recently leaped into prominence. Two of its prominent citizens, both well known in the paper industry, introduced President Coolidge as speaker at both conventions.

At the international Y. M. C. A. convention, this honor fell to Judson G. Rosebush, president of the Patton Paper Co. He was the presiding officer at the opening of the convention, having been elected to this office two years ago. Other Appleton delegates to this meeting were G. E. Buchanan, secretary-treasurer of the Appleton Wire Works, which manufactures wires for paper mills, and F. J. Harwood, president of the Appleton Woolen Mills, manufacturing papermakers' felts and jackets.

Mrs. Josephine LaBrot, mother of Fred C. LaBrot, manager of the Consolidated Water Power and Paper Company mill at Stevens Point, died on October 9, at Aberdeen, Wash. Mr. LaBrot was called away by the death and funeral for several days. Mrs. LaBrot was a pioneer resident of Wisconsin Rapids.

Mr. Harwood introduced President Coolidge at the national convention of Congregational churches a few days earlier. The former was elected first lay moderator at this meeting.

The next meeting of the Paperboard Industries Association, which is the first meeting since the association was organized in Chicago on September 11, will be held on the Roof Garden of the Waldorf-Astoria Hotel, New York City, on Wednesday, November 18, and Thursday, November 19.

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They Satisfy

2—Complete, Modern, Hydro-Electric Units, consisting of S. Morgan Smith Wheels and 150 K. V. A. Electric Machinery Company Generators and Exciters. Write for detailed specifications. Inspection invited. Reasonably priced.
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Steel Storage Tanks, Blast Furnaces, Gas Holders
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Fine Faced Felts for Fine Papers. Absolutely no felt marks in paper. TRIUNE Three Ply Felts for Coarse Papers.

Technical Association Papers, Series VIII (1925)

In paper, 248 pages. $3 per copy; $1.50 to members of TAPPI

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New York State Wood Utilization Conference

Advices from Washington state that Axel H. Oxholm will represent the Department of Commerce at the New York State Utilization Conference at the New York State College of Forestry, Syracuse University, November 12th. Mr. Oxholm is chief of the Lumber Division of the Bureau of Foreign and Domestic Commerce. The conference is being held under the auspices of the Empire State Forest Products Association and the Forestry College.

Among the state and national organizations which will be represented at the conference will be the American Paper and Pulp Association.

STATEMENT OF THE OWNERSHIP, MANAGEMENT, CIRCULATION, ETC., REQUIRED BY THE ACT OF CONGRESS OF AUGUST 24, 1912,

Of the Paper Industry, published monthly at 356 Monadnock Bldg., Chicago, Ill., for October 1, 1925.

State of Illinois, County of Cook, ss.

Before me, a Notary Public in and for the state and county aforesaid, personally appeared E. B. Fritz, who, having been duly sworn according to law, deposes and says that he is the publisher of the Paper Industry, and that the following is, to the best of his knowledge and belief, a true statement of the ownership, management (and if a daily paper, the circulation), etc., of the aforesaid publication for the date shown in the above caption, required by the Act of August 24, 1912, embodied in section 443, Postal Laws and Regulations, printed on the reverse of this form, to wit:

1. That the names and addresses of the publisher, editor, managing editor, and business managers are: Publisher, E. B. Fritz, 356 Monadnock Bldg., Chicago, Ill.; Editor, A. Scott Dowd, 356 Monadnock Bldg., Chicago, Ill.; Managing Editor, A. Scott Dowd, 356 Monadnock Bldg., Chicago, Ill.; Business Manager, E. B. Fritz, 356 Monadnock Bldg., Chicago, Ill.

2. That the owner is (If the publication is owned by an individual his name and address, or if owned by more than one individual the name and address of each, should be given below; if the publication is owned by a corporation the name of the corporation and the names and addresses of the stockholders owning or holding one per cent or more of the total amount of stock should be given): E. B. Fritz, 356 Monadnock Bldg., Chicago, Ill.

3. That the known bondholders, mortgagees, and other security holders owning or holding 1 per cent or more of total amount of bonds, mortgages, or other securities are (if there are none, so state): None.

4. That the two paragraphs next above, giving the names of the owners, stockholders, and security holders, if any, contain not only the list of stockholders and security holders as they appear upon the books of the company but also, in cases where the stockholder or security holder appears upon the books of the company as trustee or in any other fiduciary relation, the name of the person or corporation for whom such trustee is acting, is given; also that the said two paragraphs contain statements embracing affiant's full knowledge and belief as to the circumstances and conditions under which stockholders and security holders who do not appear upon the books of the company as trustees, hold stock and securities in a capacity other than that of a bona fide owner; and this affiant has no reason to believe that any other person, association, or corporation has any interest direct or indirect in the said stock, bonds, or other securities than as so stated by him.

5. That the average number of copies of each issue of this publication sold or distributed, through the mails or otherwise, to paid subscribers during the six months preceding the date shown above is (This information is required from daily publications only).

EDWARD B. FRITZ.

(Signature of editor, publisher, business manager, or owner.)

Sworn to and subscribed before me this 6th day of October, 1925.

(Seal) S. J. LEHRER, Notary Public.

(My commission expires June 30, 1928.)

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One 102" Erie
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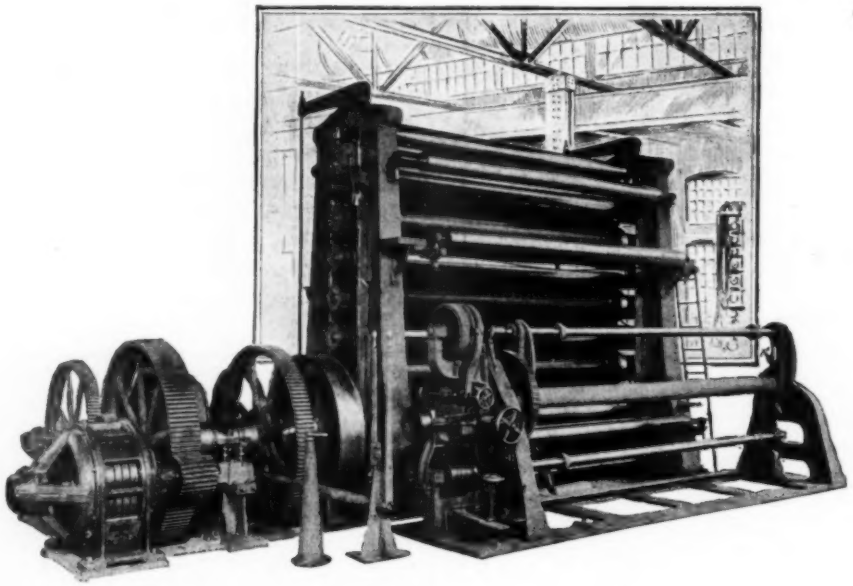

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Technical Developments in the Paper Industry

Domestic and Foreign

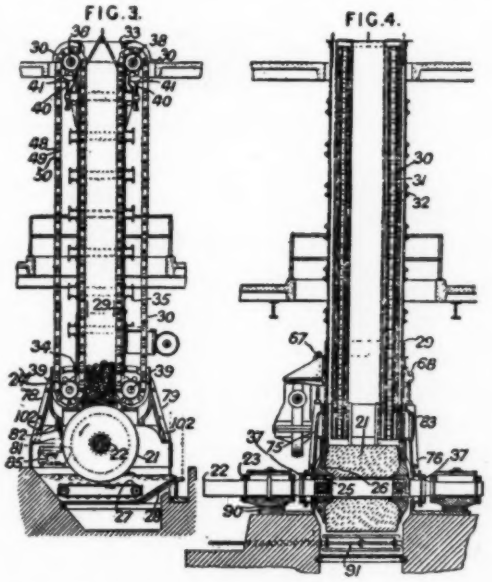
The following abstracts are of the latest developments found in the foreign press and the domestic and foreign patent offices. Photostats and translations of complete articles and patents can be obtained at cost price.

Deinking Paper

IN UNITED STATES Patent, No. 1,555,674, there is described a process for the removal of ink from paper so that it can again be worked up into paper or paper board stock. The process consists in pulping the waste paper at about a temperature of 75 degrees C, then adding soda ash and heating further to a temperature of approximately 90 degrees C. Then the materials are mixed and chloride of lime is added as well as sulphur. The mixture is them beaten for a short time and then washed.

Grinding Wood Pulp

IN A wood pulp grinder of the magazine type, the magazine is mounted above the grindstone and is of substantial height in comparison with the diameter of the stone. There is also provided an endless wood-gripping feed chain device which operates along the entire length of the magazine and



serves to grip the wood along its sides and continuously to force it against the stone, the driving sockets of the chains being situated so closely adjacent the grindstone that the wood cannot arch or jam in the lower end of the magazine. The magazine is adjustable relatively to the grindstone and wood gripping spurs are provided near the forward ends of the links of the feed chains.

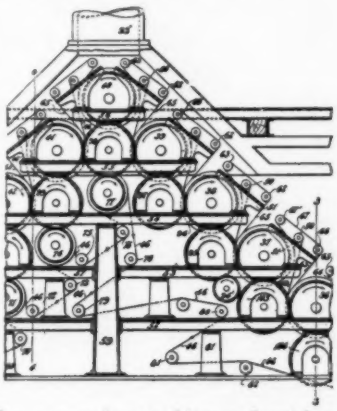
These features are seen in the accompanying illustrations. The grindstone is seen at (21), and it is properly secured on a shaft (22), which turns in water cooled bearings (23). The wood is fed from a vertical magazine (29) which is arranged centrally over the stone and adjustably mounted on the housing (24) by means of four endless roller chains (30), two on each side of the magazine, which pass down the inside of the magazine on tracks (31) in guides (23) which are fastened to the magazine. The chains pass through vertical slots (33), (34) in the guides near the upper and lower ends of the magazine. The magazine is slightly larger at the top than in its main body. The feed chains (30) are driven by sprockets (39) which are mounted upon the lower end of the magazine and close to the grindstone.

The grindstone is driven by a motor.

For further details see The World's Paper Trade Review, 1925, page 534.

Paper Drying Machine

THE illustration shows a paper drying machine which is patented in United States Patent, No. 1,556,918.



The series of dryer rolls are arranged in the form of a pyramid and are supported in a suitable frame. These rolls can be rotated and means are provided for directing the paper web successively about the series, the construction and arrangement being such that the dryer roll at the apex of the formation serves the purpose of causing the same surface of the web of paper to engage with all of the dryer rolls. There are also provided a sizing tank and a means for stocking and cutting the finished paper.

Paper Containing Rubber

PAPER which shows considerable folding endurance and which possesses good strength in the wet state is made by impregnating unsized or lightly sized paper with rubber latex, that has been stabilized by the addition of ammonia. The treated sheet of paper is passed through press rolls and dried either on drying cylinders or in a vacuum, coagulation of the rubber by acids or other chemicals being avoided. When it is desired to incorporate more than one to four per cent of rubber in the paper, impregnation and drying may be repeated several times.

Impregnation may be uniform, or the sheet may be treated on one surface only, the depth of penetration of the latex being regulated to any desired extent; the resulting product is particularly suitable for making duplex papers with rubber as the binding agent, cement bags, and the like. Other alkaline or neutral sizing agents, which blend with the rubber latex, may be used in admixture with it. The product may be vulcanized, in which case colloidal sulphur or ammonium sulphide or polysulphide is incorporated with the latex, British Patent No. 234,245.

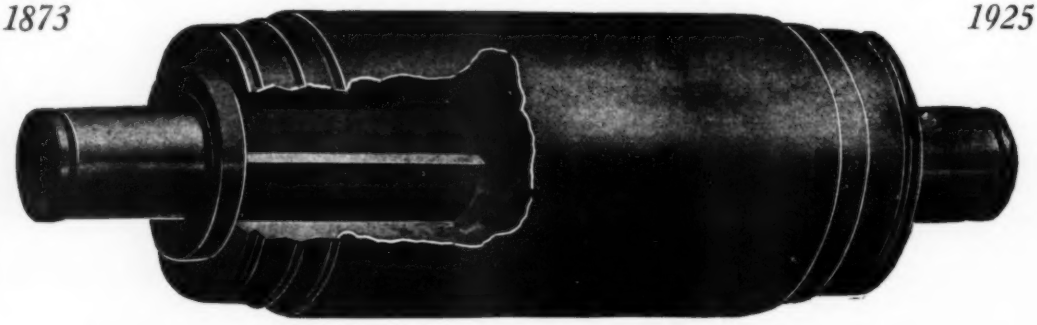
Waterproof Paper

IN GERMAN Patent, No. 415,557, there is described a process for the manufacture of paper which is resistant to water.

In this process the paper is treated with acid substances with or without the addition of formaldehyde. Under certain conditions there are also employed colloidal materials such as casein, animal glue and the like. Then again these substances may be employed in the presence of antiseptics as well as materials which make the composition elastic, and also coloring matters. The paper is then dried which is best accomplished by carrying out the process at a temperature below 100 degrees C, for example between 85 and 60 degrees C.

The acid substances must be left in the paper only in a

1873 1925



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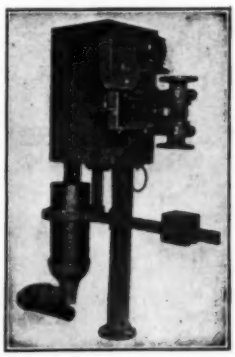

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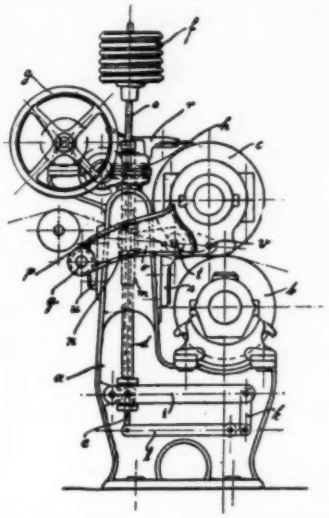
small proportion. In the case of alumina this should be at a maximum one per cent. When the process is carried out in this manner a good grade of water resistant paper is obtained.

Wet Press for Paper Machine

IN THE manufacture of fine grades of paper, silk paper and the like, it is necessary to reduce the distance that separates the couch roll from the wet press as far as possible, as well as from one wet press to the other. This is for the purpose of obtaining as short a paper travel as possible, as when the distances separating these parts on the papermaking machine are great there is danger of shrinkage in the paper web with resulting bad effects on the finished sheet.



In order to obtain as little as possible a separating distance between the presses, it is generally sought to make the diameters of the press rolls as small as possible.

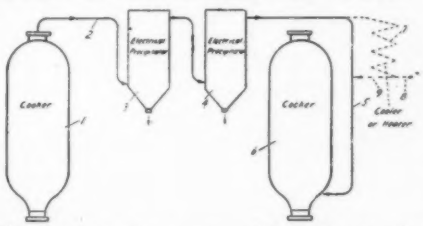
In the illustration, there is shown an arrangement in which the various parts are arranged so closely together that the disadvantage of a large separating distance is removed.

The supporting framework is shown at (a) and the press roll is shown at (b) and is made in such form that it can be easily removed from the setting. The second press roll is at (e). The vertical rod (d) serves for the purpose of introducing the solid rod (e) on whose upper end there is placed the weight (f). The tube (d) is rotatable and can be moved up and down vertically. The movement of the tube (d) is accomplished by means of the hand wheel (g) which turns the gear (h). The lower end of the rod (d) is connected with an arrangement of levers (i), (k) and (1) which are fastened to the rod (e).

Other connections are made between the hand wheel (g) and the upper press roll (c) so that by moving the hand wheel, the press roll (c) can be raised and lowered. By means of the lever connection (o) which acts on the swinging bearing (p) of the upper press roll (c), it is possible to make the connection between the lever arrangement (i), (k) and (1) and the press roll in an indirect manner. It is possible in this manner to give a greater length to the swinging lever (p) of the upper press roll (c) so that its turning point (q) is separated as far as possible from the point of contact between the rolls (b) and (c). German Patent, No. 415,606.

Utilizing Waste Gases in Pulp Industry

IN UNITED States Patent, No. 1,554,581, there is described a process for ultilizing the waste cooker gases which are obtained in the manufacture of pulp. These gases are maintained at a sufficiently high temperature to prevent condensation of the water and are then subjected to electrical precipitation in such a manner that the organic material contained in them is separated.



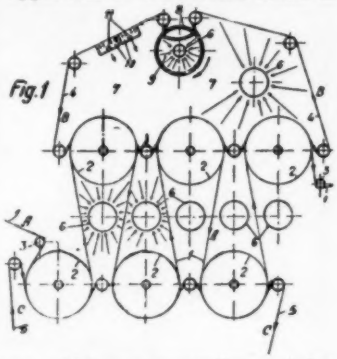
Cymene from Sulphite Liquors

THE brown oily layer that floats on sulphite cellulose lyes from the treatment of spruce wood was washed with sodium hydrogen carbonate solution and distilled. The distillate up to a temperature of 200 degrees C was redistilled and then fractionated over sodium under diminished pressure. Fraction 1, which was 38.6 per cent of the total had a boiling point of 174 to 178 degrees C under 740 millimeters pressure and consisted of para cymene. The residue was a dark brown resin. The crude oil when neutralized with sodium hydroxide and steam distilled yielded a distillate, 47.2 per cent, density 0.867 at 20 degrees C and the residue was 52.8 per cent, density at 20 degrees C being 0.99. The distillate was fractionated at the ordinary temperature.

For additional information on this subject see Papier fabrikant, 1925, volume 23, pages 504 to 2.

Heat Recovery System in Paper and Pulp Drying

THE accompanying illustration shows the manner in which a heat recovery apparatus is constructed which is intended for the purpose of recovering heat values in the vapors and mists that are obtained in the drying of paper, pulp and similar materials. The apparatus and the process are patented in French Patent, No. 591,223.



It is not a new idea to recover heat values in the vapors obtained in paper drying and means are provided for making these vapors come in contact with cold air which is heated. The arrangements which are generally used for this purpose, however, possess the disadvantage that the vapors are carried along admixed with a large volume of air and the result is that large surface areas of contact are required in order adequately to cool down these vapors.

In order to get around these difficulties, the heat contained in these vapors, according to the process described in the above patent, is removed as closely as possible to the point where they are produced and this is accomplished by condensation of the vapors on a thermal exchanging device.

These are seen in the figure at (6). It will be noticed that some of these heat exchanging devices are located outside of the apparatus which conducts the drying and others are located within the interior of the cylinders, as for example in the case of the cylinder (9). It is claimed that this arrangement achieves quite a considerable recovery of heat without interfering in any way with the operation of the drying process itself.

Chemistry of the Sulphite Process

A NUMBER of new investigations were made into the chemistry of the sulphite cellulose process and the results were reported in the article published in Zellstoff und Chemie, volume 5, pages 5-9, 121-3, of which this is an abstract.

The mechanical and chemical properties of the pulp bear a close relation not only with the composition of the digestion liquor and the nature of the heating process, but most particularly as well with the fact whether or not there is any sulphite available in the liquor when the digestion is completed. Directly after or a few minutes after the last traces of available sulphite have disappeared from the digestion liquor, not only is the pulp but the composition of the digestion liquor altered to a considerable extent.

When there is a relatively high proportion of lime (available sulphite) and a considerable percentage of total sulphur dioxide present in the digestion liquor, the pulp that is obtained with this liquor possesses a very high strength, on the assumption that the digestion is stopped a little time after the disappearance of the last available sulphite. As the sulphur dioxide content of the liquor increases this point approached closer and closer the time of disappearance of the sulphite. Without considerably increasing the yield and the behavior of the sulphite pulp that is made by this process, it is possible to obtain comparatively high yields of sugar. Within certain limits of content of sulphur dioxide and lime in the digestion liquor, when the digestion is carried out in the correct manner, it is possible to obtain approximately the

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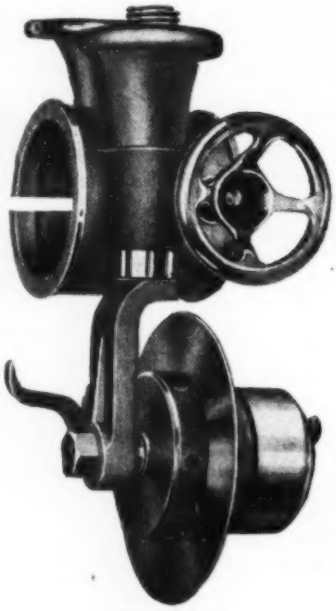

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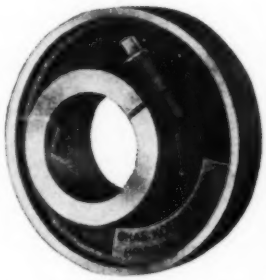

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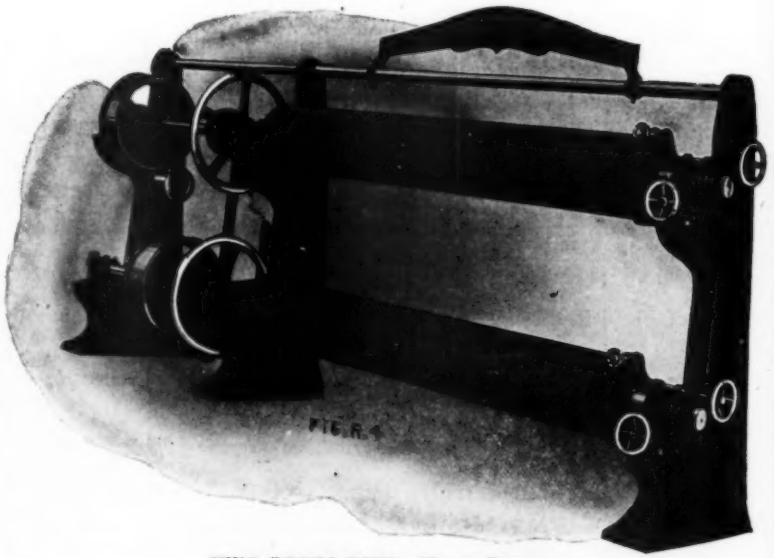


TWO DRUM REEL—Heavy Pattern

same yield of sulphite pulp which amounts to about 48 to 49 per cent of the weight of the wood.

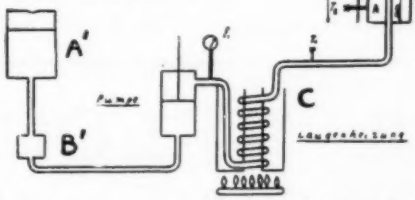
The tearing length of paper which is manufactured from such grades of pulp shows differences which reach as high as eight per cent at a maximum. As the lime content of the digestion liquor increases, the copper number of the pulp that is manufactured with its aid increases as well. After the available sulphite has disappeared, the bromine number of the sulphite pulp increases slowly, and later it decreases again, but in this case the strength of the sulphite pulp is reduced to a marked degree. The quantity of sulphur dioxide which is combined with the other ingredients in the liquor and which serves as a measure of the consumption of sulphur in the process, increases very markedly as the sulphur dioxide concentration of the digestion liquor increases. After the available sulphite has disappeared, acceleration of the combination of the sulphur dioxide ensues.

New Process for Recovering Soda Liquors

THE matter of reworking the waste liquors that are obtained in the manufacture of soda pulp is one that is fraught with many difficulties and inconveniences, not the least being the fact that very disagreeable odors are produced during the recovery process. According to Le Papier, a process has been invented by the Finnish paper chemist, Dr. Frik Haegglund, in which not only are valuable products obtained but the bad odors that are generally encountered in reworking waste soda lyes are also done away with.

The principle of the process is based on the fact that when the waste liquors are subjected to a high temperature, interesting chemical products are obtained which results from the decomposition of the organic substances that are dissolved in the liquor. The decarbonization begins at a temperature of 250 degrees C but the reaction is slow at first and at that temperature it requires several days for completion. At a temperature of 30 degrees C the reaction is more rapid and at a temperature of 350 degrees C the rapidity is so great that the liquor is entirely decarbonized within a period of thirty minutes.

The products that are obtained in this process are constituted principally of a tar which is combined with a carbonaceous substance. At the ordinary room temperature the tar has the consistency of pitch and it becomes liquid at a temperature of 100 degrees C.



It is not a difficult matter to separate the tarry and carbonaceous matters thus formed from the remainder of the waste liquor. Furthermore, these are not the only materials that are formed under the influence of heat from the waste soda lye. Methanol and acetic alcohol are also produced. The methanol results from a saponification of the methoxy groups that are present in the lignin found in the liquor. The yield of methanol is a function of the temperature at which the operation is carried out and also of the duration of the treatment and of the degree of alkalinity of the liquor. When good yields of methanol are to be obtained it is wise not to prolong the heating more than one hour.

On the other hand the yield of acetic acid is independent of the temperature at which the process is carried out and this applies to the alkalinity of the waste lyes as well. This yield varies between six and seven per cent, figured on the weight of the wood, in the case of resinous woods, and can be increased up to 10.5 per cent in the case of certain broad-leafed woods.

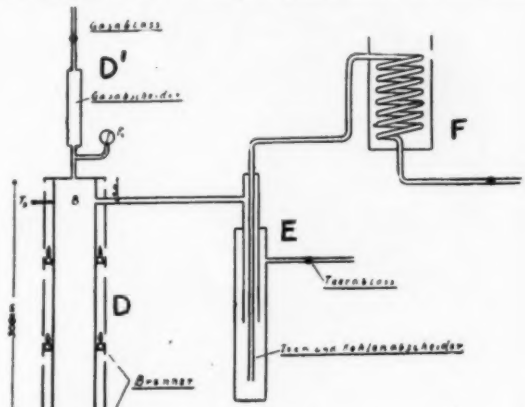
During the course of the treatment, there is also obtained a certain amount of combustible gas which is composed of methane and hydrogen but whose composition varies very considerable with the conditions under which the decarbonization of the waste lyes is carried out. In this case the alkalinity of the liquor plays an important role.

The apparatus in which the process is carried out is seen in the accompanying illustration. Starting at the left (A') represents a tank in which the liquor is stored until ready to be pumped through the filter (B'). The liquor then passes through the heater which is seen at (C) and there the temperature of the liquor is raised before it enters at (A), into the reaction vessel (D). This reaction vessel is heated with the aid of a number of gas flames as can be seen from the diagram, the decarbonized liquor leaves the apparatus at the point (B). It will be seen that the excess gas pressure which is developed in the reaction vessel (D) is relieved through the opening (D'). The tarry matters are separated from the rest of the liquor in the separator (E) and the tar flows off through the top opening while the rest of the liquor goes to the cooler (F).

It is possible to improve the process by effecting a certain amount of heat interchange by bringing about indirect contact between the hot liquor and the crude black liquor as it enters the apparatus. The separation is a continuous one.

The practical yields that are obtained with this apparatus are as follows:—

The figures are based on the ton of kraft pulp that is obtained from pinewood. In the first place there are 510 kilo-



grams of tar, tar oil and carbon, and the calorific power of the mixture is 6,600 calories per kilogram.

One hundred and thirty cubic meters of gas with a calorific power of 4,000 calories per square meter.

Three hundred and twenty-five kilograms of crystallized acetate of soda.

Fifty-five kilograms of methanol.

When starting with straw as the raw material the yields per ton of pulp are as follows:

Three hundred and seventy-five kilograms of acetate of soda, crystallized.

Twenty-six kilograms of methanol.

It is stated that the process can also be applied to the waste liquors that are recovered in the manufacture of sulphate pulp.

For further details, see Le Papier, 1925, page 883-5.

Manufacture of Paper

THE invention which is patented in British Patent, No. 230,170, is concerned with a new and improved method of making paper. According to the invention the pulp which is to be concentrated is led on to or against a single, wire cloth covered, perforated drum which revolves around a stationary conduit. The space between the conduit and the interior face of the drum is divided into two or more compartments acted upon by exhaust pumps. The opening to the perforated drum of one of the sand compartments is approximately equal to the area of the contacting mass of pulp and communicates with a pump for exhausting the water drawn into the same in the act of causing a film of sheet of the pulp to adhere to the foraminous covering of the perforated drum in register with said opening while the preceding chamber has an opening to the perforated drum sufficiently large to allow the air pump with which said chamber communicates to drain and dry the sheet of fibers adhering to the foraminous covering when the perforated drum has rotated through an arc of a circle sufficient to bring the sheet of film into register with the second chamber opening.

The operation is carried out in a continuous manner and the

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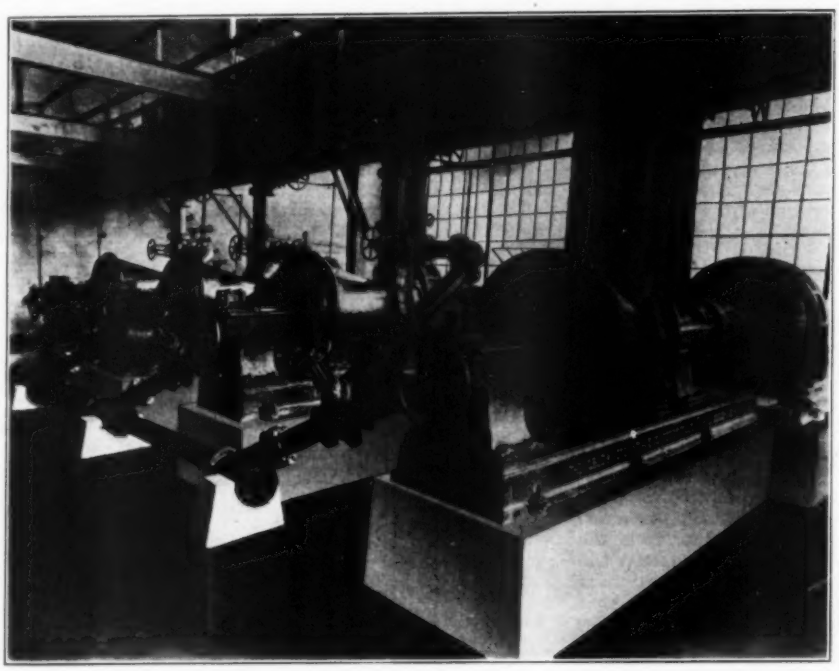

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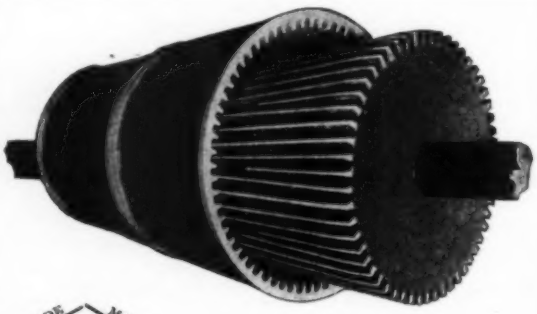

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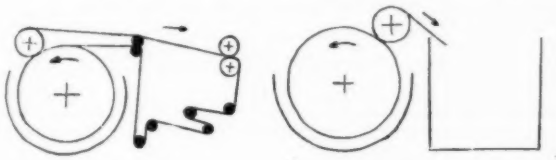
comparatively dry sheet is led on to an endless felt or the like. About the stationary conduit and at a point preceding the second chamber, a chamber or duct can be provided through which air or steam under pressure is forced to blow the paper from the roll on to the felt. When the machine is started and the paper running through properly, the air or steam could be shut off. Also, if desired, a second chamber or duct may be provided at a point preceding the first, through which water can be forced to wash the roll, or if desired, a spray can be arranged exteriorly of the drum for this purpose, or one or more exterior sprays may be provided placed in register with an additional compartment or compartments for the purpose of washing the sheeted or concentrated pulp.

Dehydration of Mechanical Wood Pulp

THE manner in which the dehydration of mechanical wood pulp is carried out in the board machine and in the thickening machine is very different according to the manner of working and the commercial properties of the product. The manner of operating the two machines is fundamentally alike. In both cases the dehydrating cylinder is made of finely meshed wire and the waste waters obtained in the proc-



ess must in both cases contain a certain amount of fiber values. However, it has been found that when the machines are operated in one and the same mill, the quantity of fiber values in the waste waters differs materially and it was for this reason that the experiments reported in Zellstoff und Papier, 1925, page 257 were undertaken.

Under most favorable operating conditions, the amount of fiber values in the waste waters from the board machines was about 0.1 grams per liter or from 3.5 to 6 per cent of the total quantity of fibers processed.

From the figure which indicates in diagrammatic form the parts of a board machine, it is seen that under normal operating conditions the felt, which lifts the fibers from the surface of the dehydrating cylinder, is curved around the cylinder itself to a certain degree, and this then makes possible a favorable condition for the penetration of a part of the liquor through the felt. In the operation of the board machine it may also be observed that the liquid collects on the felt around the roll and flows off at the end.

Every mechanical woodman realizes the importance of the felt in the process. When the perviousness of the felt to water is slight or when the passage of water through it is hindered by the presence of impurities in the felt itself, sufficient of the liquid cannot penetrate through the felt structure whereat the layer of fibers on the cylinder screen is squeezed together in such a fashion that the boards that is eventually obtained does not possess the high quality that is demanded of such products. When in the case of shorter felts, the breast roll lies at a higher point on the cylinder and the pressed out liquor has no chance of penetrating through the pores of the felt, it causes the flotation of fibers and a part of them are carried away by the waste water. When fibers of normal length are being felted together, the content, figured on the absolutely dry weight of the fibers taken by the felt from the cylinder increases to about 8.5 per cent, whereat the percentage of moisture removed amounts to about three per cent of the entire amount of water that is removed by the srceening machine.

When further dehydration takes place through the press rolls, another 1.5 per cent of the total liquid that is removed is carried away, whereat the content of fibers, figured on the absolutely dry weight, attains 28 to 29 per cent. In all, in the second and third stages of the dehydration, 4.5 per cent in total of the entire liquid that is removed, is carried away. As the fiber content in this liquor is only 0.25 gram per liter, the fiber loss in these waste waters amounts to half a per cent of the total production of the mill.

It was also found that when the pressure on the roll was increased then the content of fibers, figured on the absolutely dry weight of the final products, was increased from 3.5 per cent to 4.5 to 5 per cent. The liquid that was present from the rolls and also obtained from the cylinder wire contained up to 0.8 gram of fibers in a liter and the result is that the total fiber content in the entire volume of waste water obtained from the concentrating machine is increased to as high as 0.35 gram per liter.

For further details on this interesting subject, see Zellstoff und Papier, 1925, number 7, pages 257-8.

Testing the Strength of Wood Pulp

THE strength of commercial varieties of wood pulp is developed for testing purposes only after suitable beating. It is found that the maximum tensile strength of the paper is reached when the stuff has been beaten to a parchmentized condition. The preparation of commercial wood pulp sheets for testing is performed in a miniature beater which is driven by means of a motor which is fitted with an ammeter. The charge of one hundred grams of dry pulp is first circulated for the period of one hour with the roll raised and then the roll is pressed down on the plate in order to give a strong beating action. After about forty-five minutes of beating, a test sheet is made on a six-inch Buchner funnel with a wire sieve.

The sheet is pressed and dried on a hot copper surface, and the degree of parchmentization is tested by means of the "blister" test which should take place without charring of the paper. Test samples are taken every fifteen minutes until a satisfactory result is indicated. A latitude of fifteen minutes after the appearance of a strong "blister" is allowable without danger of overbeating.

The sheets for the tensile test are then made under standard conditions in a special funnel, 21 by 12.5 centimeters, which is fitted with a perforated copper plate which is covered with a 70-mesh screen. The highly diluted pulp is poured into the funnel, which is kept flooded with water until uniform distribution of the fibers is insured. The water is then drained off without shaking and the sheet is couched, pressed and dried. The breaking length is then determined with all due precautions and corrected for humidity. The quality of the pulp by this method is to be assessed in conjunction with its chlorine consumption value. The higher the tensile strength in combination with a lower chlorine value the higher the value of the pulp. The best pulp is produced by the Mitscherlich process; a high grade German variety, having a chlorine consumption value of 14.5 and a maximum breaking length of 10,871 meters and a folding test of 2675. Papierfabrikant, 1925, pages 525-9.

Ventilation in Paper and Pulp Mills

AN INTERESTING study of the ventilation problems that arise in the pulp and paper mill is contained in the Swedish journal, Papier Journalen, volume 14, number 15, page 182.

The solution of the ventilation problem must be considered and is considered in the aforementioned article according to three different points of view in a systematic manner. Thus it must be studied from the heat, ventilation and drying standpoint. The heat that is required in the process is composed of that which is used for the evaporation of the water, which remains constant, the heat of transmission, which varies very strongly with the external temperature, formation of drops, and the heat that is found in the air. Rational utilization of the heat can be effected partially by connecting the drying cylinders in series according to the countercurrent principle.

In order to reduce the heat losses in the condensation water, the same is pumped into a central tank and from that point to local warm air batteries which cool off the condensate in an effective manner. In the winter time, the temperature is reduced to as low as 50 degrees C and in the summer time to as low as 70 degrees C.

An indirect advantage results through the greater amount of heat removal by the colder condensate water from the hot flue gases in the economizer. The largest portion of the heat that is employed in the process is found again in the moist air which is drawn out of the dryer room.

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Paper Mill Architect and Engineer
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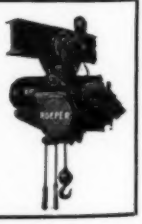

New York, November 2, 1925.

GENERALLY speaking, activity in the paper industry is on a fairly broad scale and market conditions are quite gratifying to manufacturers and merchants. It is true that some classes of paper are in relatively much better demand than others; in other words, it might be said demand is not as evenly distributed as some in the industry would like to witness it, yet it cannot be denied that in the aggregate there is a very good movement of paper into consumption and that the market condition is very healthy from almost any angle one may view it.

Moreover, there seems every reason to believe a good and lively market is due to exist for some time to come, and that demand for those kinds of paper which have been lagging to some extent in point of activity thus far this fall will expand. Consuming trades with few exceptions are well engaged, notably the printing industry and the publishing trade. In fact, it is probable newspaper and periodical publishers were never in a more favorable position, and they are consuming print and book paper in heavy tonnage. Also, consumption of paper in the retail trades has broadened considerably, and gives promise of increasing further as the pre-holiday season approaches. There is every sign that consumers and jobbers alike are carrying small stocks, keeping their warehouses and shelves fairly bare of accumulations, and ordering supplies as their requirements develop. Another healthy sign is that producing mills also are reducing surplus stocks, latest available figures showing that mill holdings of some classes of paper are on a lower level than in a long time.

Prices of paper are well maintained. As a matter of fact, the tendency in most cases is upward yet manufacturers purposely are endeavoring to keep prices on as reasonable a level as is possible, feeling that this will lead to better business, and there is no doubt paper is being produced and marketed in numerous instances at a very small margin of profit—probably too small. Furthermore, there is every indication prices will hold on at least prevailing levels all during the winter. If there are to be changes they should be in an upward direction, taking into consideration the firm position of wood pulp and most of the other raw materials entering the paper mill, the labor situation and other controlling factors.

Probably the most important development in the market during the last month is the reduction announced in the contract price of newsprint for 1926 deliveries of $5 a ton from $70 to $65 f. o. b. paper mills for standard news in rolls. This decline was promulgated by the leading domestic producers and also by mills in Canada. The recession in newsprint prices was not unexpected; in fact, the trade had looked forward to it from the time several months ago one of the largest producing companies in Canada announced it would cut the contract basis to this extent for next year.

Explaining the reduction by the largest domestic producer —the International Paper Company—J. L. Fearing, vice-president and manager of sales of that company, issued this statement: "At this reduced rate many mills in the United States will, in our opinion, be unable to operate at a profit. This situation will be emphasized if Canada should further restrict or prohibit exportation of her pulp wood. But with added low-cost capacity at Three Rivers, Quebec, which will soon raise our output there from 340 to 700 tons daily, together with immediate construction of another equally efficient unit on the Gatineau River, near Ottawa, we shall have ample capacity to care for all probable requirements on an expanding scale."

Newsprint consumption is hitting the high spots. Taking the New York newspapers as a criterion—and they are a very good barometer—the consumption of print paper is pretty close to a record at present, and has been for some weeks. It is nothing unusual for certain of the largest-circulated morning papers in the metropolis to print issues of 52 and 56 pages on weekdays, while the afternoon newspapers have printed just as many pages frequently for some time past. Production of newsprint in the United States in September reached a total of 121,019 tons and shipments from mills amounted to 127,409 tons, according to the News Print Service Bureau. Production in Canada was 124,704 tons and shipments 124,689 tons, making a total for the U. S. and the Dominion of 245,723 tons and total shipments of 252,098 tons. During September mills in the U. S. operated at 86.6 per cent of capacity and the Canadian mills at 95 per cent. Stocks of newsprint at U. S. mills at the end of September amounted to 27,326 tons, and at Canadian mills 22,864 tons, a total of 50,190 tons or approximately 4.6 days' average production.

The combined production of newsprint of the U. S. and Canadian mills during the first nine months of 1925 was 6 per cent more than in the same time of 1924, 8 per cent over 1923, 20 per cent over 1922, 50 per cent over 1921, and 24 per cent over 1920. These figures are indicative of the big production and heavy consumption of print paper thus far this year.

The American Paper and Pulp Association's monthly statistical summary for September shows that production of paper of all kinds in the United States increased 7 per cent as compared with August. Total production was 474,015 net tons, contrasted with 466,757 tons for identical mills in August. All grades showed a gain in September over the preceding month with three exceptions. Mill stocks of paper declined rather sharply during September, the report shows there were total stocks of 239,254 net tons at the end of that month, against 255,157 tons at the end of August. These figures indicate manufacturers not only shipped out all of their production in September but also a part of their surplus stocks, shipments for the month totaling 489,008 tons or some 15,000 tons in excess of the output.

Reports tell of a steady demand for book paper on a growing scale. Mills, with few exceptions, are well fixed with orders and some are far behind in their deliveries. There have been no definite changes in prices but a stiffening tendency is noted. Fine papers are in fairly active demand and prices are very firm. In connection with fine paper there is a development of much interest—and importance. It is that consumers are buying mostly sulphite bond paper instead of rag bonds and ledgers. It is a fact, according to authoritative reports, that mills which in the past have featured their lines of rag papers have been obliged to turn to sulphite bonds in order to compete in the market, and it is stated that by far the greater proportion of bond paper produced today is of wood base rather than of rag content.

Building papers are in excellent demand for this late in the year, and mills making roofing felt, sheathing paper and the like, are operating on a much larger scale than is usual at this time. Wrapping paper is in good call and manufacturers are reported well provided with orders, while prices hold firm.

There has been a little easing of prices on plain box boards. Chip board is down to $42.50 a ton delivered in the East, and filled news board to $45. Container board, board for corrugating and folding box boards are reported moving freely and steady in price. Wallboard is enjoying a fairly active market at maintained prices.

Mr. Sydney Thayer, Secretary and Treasurer of the Henry Bower Chemical Manufacturing Company, Philadelphia, has been elected a director of the Pennsylvania Salt Manufacturing Company to fill the vacancy caused by the resignation of Mr. George A. Heyl.

Quality

Michigan Alkali Company

General Sales Department 21 East 40th Street *New York, N. Y.*

Domestic Raw Materials

Papermaking Rags

Current business in papermaking rags is at best of routine scope. Mills are buying, in fact, in much smaller volume than usually characterizes their operations at this time of the year, and it would appear as if the principal reason for the limited consuming demand is that paper manufacturers have in a large majority of cases covered their requirements for a while and purposely are keeping out of evidence as buyers, excepting at spasmodic intervals as they need fresh supplies. The price tendency in most classes of rags is downward, yet there have been no important changes in the past several weeks. It is the contention of dealers and importers that prices are down to levels where little profit is to be realized in handling papermaking rags, and probably this, coupled with a fairly firm market condition in Europe, is the main factor serving to sustain market values in the face of the limited movement of supplies into mill channels.

The outlook in papermaking rags is somewhat difficult to determine. There does not seem to be any reason for any sharp uptrend in prices; at the same time, one never knows what is going to happen in rags because the market at all times is a very temperamental one and it does not require much in the way of demand to cause values to shoot upward. Judging from most of the signs now visible, however, no sudden nor drastic changes in a higher direction should occur in the next few months. It is no secret that some sizable accumulations of foreign rags exist in the United States at present, also there are fairly large stocks of some domestic grades in dealers' hands. It would require quite a bit of buying on the part of paper mills to reduce stocks to a level where an advance of worthwhile proportions in prices might result. So long as consumers adhere to their present policy of buying there should be no severe changes in market levels.

The situation is not without its bullish features nevertheless. Probably the all-important factor on the bullish side is that dealers in Europe are very firm in their attitude, holding for certain prices for rags—particularly low grades as used by roofing paper mills—and seeming determined not to sell at cheaper figures. Moreover, reports state that demand for rags from consumers throughout Europe is on the increase and this doubtless means fewer rags will become available for export. Also, the winter is approaching, when collections in the U. S. fall off, owing to unfavorable weather conditions, and when as a usual thing the market adopts a stronger price tone.

There has been one important development influencing the rag market thus far this year. It is the reduced consumption of the better qualities of old cottons by writing paper mills in the United States. It is a fact, according to authorities in the trade, that far fewer old whites and blues have been used by fine paper manufacturers this year than ever before, this being due to a relatively much larger demand for sulphite bonds than for rag bonds and the consequent necessity of mills accustomed to producing rag bonds turning to wood papers. The result has been an accumulation of such rags in dealers' establishments, and it is probably not going too far to say that more old whites and blues are held by dealers today than has been the case in a long time. Furthermore, it is a hard matter to dispose of these rags to mills at prices satisfactory to dealers.

In foreign rags there has been a fair amount of buying by felt paper manufacturers of the low grades used by them for forward shipment from abroad. Prices in Europe are well sustained. There have been numerous bids cabled over to Continental shippers at prices slightly under quoted rates and in most instances they have been refused. European dealers want at least 2 cents a pound landed New York for foreign dark colored cottons when selling to importers in New York, which would make the importer's selling basis to paper mills around 2.25 cents, and it is difficult to negotiate sales at this level, one prime reason being that felt paper mills are fairly well fixed with supplies and can afford to hold off buying.

New cuttings of most kinds are holding their own in price. The production of new rags is low, this being the principal sustaining factor as paper mills are absorbing supplies cautiously and almost solely against immediate needs. No. 1 white shirt cuttings are fetching 14.75 to 15 cents per pound f. o. b. New York, blue overall cuttings 11.75 cents, unbleached muslins 14.75 cents, fancy shirt cuttings 9.50 cents, light silesias 11.50 cents, and washables 7.50 cents.

Domestic roofing rags are selling at around 2.30 cents at dealers' shipping points for No. 1 packing, and 1.90 to 2 cents for No. 2 stock. Most dealers quote 3.75 cents a pound at shipping points for repacked thirds and blues.

Average quotations f. o. b. shipping points and ex dock New York are as follows:

New Stock—	New York and Chicago
White shirt cuttings, No. 1	14.75-15.00
White shirt cuttings, No. 2	10.25-10.75
Fancy shirt cuttings	9.25- 9.50
Washables, No. 1	7.50- 7.75
Unbleached muslins	14.75-15.00
White lawns	13.50-14.00
Overall cuttings, blue	11.50-11.75
Black silesias	6.25- 6.50
Light flannelettes	12.50-13.00
Canton flannels, bleached	13.50-14.00
Canton flannels, unbleached	13.25-13.50
Shoe cuttings, bleached	13.00-13.50
Shoe cuttings, unbleached	12.00-12.50
Light silesias	11.50-11.75
O. D. khaki cuttings	7.25- 7.50
Mixed khaki cuttings	6.50- 6.75
Corduroy cuttings	6.00- 6.25
Cottonade cuttings	5.25- 5.50
Linens, No. 1 white, foreign	15.50-16.50
Light prints, extra, foreign	3.50- 3.75
Old Stock—	
Whites, No. 1, repacked	7.00- 8.00
Whites, No. 2, repacked	4.25- 5.00
Whites, house soiled	3.25- 3.50
Whites, street soiled	2.75- 3.00
Lace curtains	6.50- 7.00
Thirds and blues, rough	2.40- 2.60
Thirds and blues, repacked	3.50- 3.75
Black stockings	4.50- 4.75
Cotton canvas, No. 1	5.75- 6.25
White cotton batting	4.00- 4.25
Roofing, No. 1	2.30- 2.40
Roofing, No. 2	1.90- 2.00
Dark colored cottons, foreign	2.15- 2.25
Blue linens, foreign	5.25- 5.50
Gray linens, foreign	5.50- 6.00
White linens, foreign	10.00-10.50
Light prints, extra, foreign	3.50- 3.75

Rope and Bagging

All grades of old bagging are very firm in price and apparently in light supply. This market condition is a very healthy one founded on circumstances over which the trade has no control. It hearkens back to the sharp rise in prices of new burlap and second-hand bags, based on a short jute crop in India this year, and a resultant curtailment of supply

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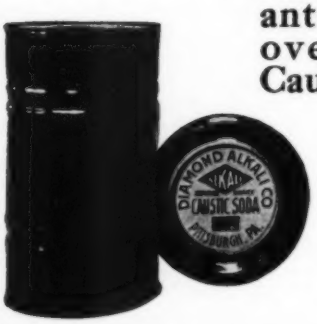

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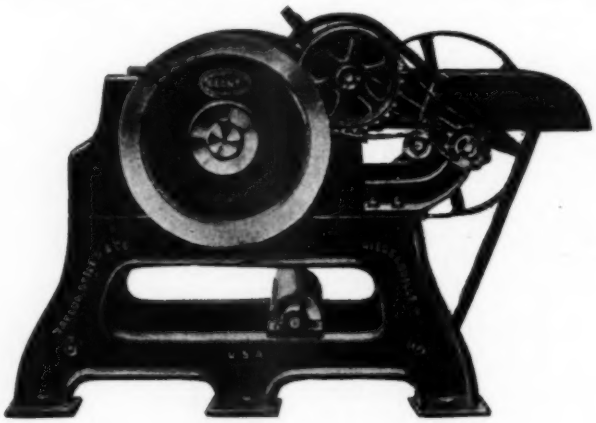
DIAMOND ALKALI COMPANY
PITTSBURGH, PA.



RAG CUTTERS

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of old bagging. In other words, with bags of every description commanding fancy prices, fewer sacks are junked and less scrap bagging reaches the market. Furthermore, there is a tremendous demand in the South this season for bagging for baling cotton, and this is removing a great deal of stock which otherwise would be available to paper mills.

No. 1 scrap burlap has strengthened in value to where dealers now quote 3 cents a pound f. o. b. shipping points and it is doubtful whether strictly No. 1 packing could be bought under this figure. Roofing bagging is quoted 1.90 to 2 cents a pound at dealers' points, and No. 1 gunny bagging at 3.50 to 3.75 cents.

Old rope is steady in price and in demand. There has been a little more call reported for foreign rope but 6 cents a pound ex dock New York is about all paper mills have paid for No. 1 imported manila rope. The domestic article is bringing 6.75 to 7 cents a pound at shipping points and still is in relatively better demand than foreign old rope.

F. o. b. shipping point and ex dock New York quotations follow:

	New York and Chicago
Gunny, No. 1 domestic	3.50-3.75
Gunny, No. 1 foreign	3.50-3.75
Scrap bagging, No. 1	2.90-3.00
Roofing bagging	1.90-2.00
Wool tares, heavy	3.75-4.00
Wool tares, light	3.60-3.85
Manila rope, No. 1 foreign	5.75-6.00
Manila rope, No. 1 domestic	6.75-7.00
Sisal strings	3.00-3.25
Mixed strings	1.75-2.00

Old Paper

While there have been spurts of activity in some grades and although quoted prices as a general thing rule steady to firm, the market for old paper is lagging behind. That is to say, aggregate demand from consuming quarters is not of seasonal volume; in fact, it can be stated buying by board and paper mills is far under the level usually noted at this period of the year. September and October ordinarily are the most active months in the old paper trade yet dealers in common say the past two months have witnessed very unsatisfactory market conditions, and much complaint is registered over the small volume of mill buying.

However, prices are well maintained. There has been a downtrend in some few grades; on the other hand, other descriptions have tended higher with indications of at least enough demand to sustain values. Collections are kept on a rather low level, packers contending there is no incentive to push collectors to gather larger supplies. Shavings are quoted around 3.65 cents a pound f. o. b. shipping points for No. 1 hard white and 2.85 to 3.10 cents for No. 1 soft white shavings. Old kraft paper is one of the strongly quoted items, dealers demanding at least 2.40 cents a pound at shipping points for No. 1 packing and most quotations being a little in excess of this figure. Books are in slow call with prices ranging from 1.10 to 1.25 cents per pound on No. 1 heavy magazines, and around 90 cents a hundred pounds for crumpled books. Ledger stock is fetching 1.50 cents a pound for the usual run of packing and 1.60 cents to 1.65 cents for better quality material. Flat folded news is selling at about 75 cents a hundred pounds f. o. b. dealers' points, and No. 1 mixed paper on a range of 55 to 65 cents, depending on locality and quality of packing.

The following are prices f. o. b. shipping points:

	New York and Chicago
Hard white shavings, No. 1	3.60-3.80
Hard white shavings, No. 2	3.00-3.25
Soft white shavings	2.85-3.10
Colored shavings	1.15-1.30
Heavy book, No. 1	1.10-1.25
Crumpled book, No. 1	.85- .95
Ledger stock	1.50-1.65
Kraft, No. 1	2.40-2.50
Manilas, No. 1	.85-1.00
White blank news	2.00-2.10
Over-issue news, No. 1	.85- .90
Folded news	.75- .80

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Successor to Dyestuff Department of H.A.METZ & Co.

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GATTI Paper Stock Corporation
Formerly with the Gatti-McQuade Co.

Paper Manufacturers' Supplies
COTTON AND WOOLEN WASTE

All Grades of Rags and Paper Stock, New Wrapping Paper, Box Board and Cordage

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Penn Paper and Stock Co.

Wholesale packers and distributors of all the assortments of waste paper. Capacity 150 tons daily.

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240 North Front St. PHILADELPHIA, PA.

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The General Chemical Company, in contracting to supply its product, assumes the full responsibility of dispatching shipments to maintain scheduled deliveries. Having a number of plants to draw on, unforeseen difficulties at any one can be offset by routing shipments from another.

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Single Unit Tank Cars Multi-Unit Tank Cars
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UNION SULPHUR

The Best for Better Sulphite Pulp

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Substantial warehouse stocks always maintained at strategically located seaboard stations insure

Prompt Delivery Against All Orders

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The easiest way to survive competition is to reduce the cost of production.

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Jenssen Spray Coolers
Bullard Gas Washer
Decker Cooking Process
Kamyr Feltless Wet Machine

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200 Fifth Ave., New York City

Sulphite mill wrappings	.75- .85
Mixed paper, No. 1	.55- .65
Common paper	.35- .40

Pulp Wood

Pulp timber is reported in very good demand. In fact, it is stated the market is growing livelier right along, with grinders manifesting pronounced interest and purchasing wood on a fairly large scale. Some sizable contracts have been placed recently at full quoted prices, it is said, and dealers in general anticipate a steady market for some time to come. Peeled wood is quoted at $18 to $19 per cord, f. o. b. up-State points in New York, with 2-foot rossed wood priced at $22 to $23 a cord.

Exports of pulp wood from Canada during the first nine months of 1925 totaled 1,185,495 cords, valued at $11,775,969, showing an appreciable gain over the 1,090,425 cords of a value of $11,140,838 exported in the same period last year.

Mechanical Pulp

A steady demand of considerable dimensions prevails for ground wood and the market displays an upward tendency. In fact, it can be said that the statistical position of mechanical pulp is growing stronger day by day what with producers either using or shipping out more pulp than they are making, and with stocks at grinding establishments being reduced at a rather rapid rate. It is customary for grinders to pile up surplus supplies of ground wood during the summer, while enjoying favorable water conditions, to last them over the draught period in the fall and early winter. Thus far this season, consumption has been heavy and the stocks accumulated during the summer are fast disappearing. Consequently, offerings by producers are diminishing and it is becoming somewhat of a task to locate available supplies of ground wood in sizable quantities.

By way of example, stocks of ground wood at U. S. producing mills at the end of September, according to association figures, totaled 138,233 net tons, showing a sharp decline from the 160,349 tons held at the end of August and putting mill stocks at the lowest point since last March. This means, of course, that consumption and shipments are increasing whereas production is not keeping pace.

Domestic grinders quote in the vicinity of $30 per ton f.o.b. grinding plants for prime spruce ground wood, with some quotations ranging a good ways beyond this level. Canadian producers quote around $28 a ton, depending on the air-dry test and the freight to consuming centers. Scandinavian ground wood is quoted around $35 a ton ex dock New York.

Chemical Pulp

The most important development in chemical wood pulp is an advance in prices of domestic bleached sulphite. After ruling on a level of 3.87½ cents per pound f.o.b. pulp mills for a lengthy period, leading producers in the U. S. and Canada a few days ago marked up quotations to a minimum of 4 cents at pulp plants for prime bleached sulphite. This, in other words, constitutes the bottom price at which No. 1 bleached sulphite is available; other grades are quoted up to 4.25 and even as high as 4.75 cents for the best bond paper qualities. The rise in this class of pulp is nothing more than a reflection of increased business which pulp manufacturers are enjoying. Not only are papermakers buying in better volume but a strong demand for bleached sulphite has developed from the rayon or artificial silk industry, in which direction large quantities of sulphite are now moving.

The market for domestic pulps is firm, to say the least. Most mills are well provided with orders and are said to have the great bulk of their production sold for some time to come. In fact, matters have reached a point where it is no easy task to buy spot deliveries of many classes of pulp. No. 1 unbleached sulphite is bringing 2.75 to 3 cents a pound freely at shipping points, and easy bleaching sulphite is quoted at 3 to 3.15 cents. News grade sulphite is firm around 2.70 cents f.o.b. pulp mills. No. 1 kraft is selling at 3 cents and higher, and bleached soda pulp at 3.50 to 3.75 cents at producing points.

F.o.b. pulp mill quotations are as follows:

Bleached sulphite	4.00-4.75

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Soda Ash
Caustic Soda

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Over 75 stock distributing points assure prompt shipment with minimum transportation charges.

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USERS of International Salt benefit by our grasp of the true principles of service.

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INTERNATIONAL SALT COMPANY, Inc.

NEW YORK OFFICE 2 RECTOR ST.

Uncle Jake says—

TROUBLE is a sieve through which we sift our acquaintances; those who are too big to pass through are our friends.

The Good Book says that man is born to trouble as the sparks fly upward, but my experience is that many of our troubles we might avoid just by the use of a little foresight—a little careful thinking.

You do not care very much for the man who is always handing you advice and neither do I, but a little suggestion now and then is helpful to the best of men, and so I say to you candidly and I can furnish the proof that K. V. P. Papers for all uses have enabled a lot of folks to avoid very serious trouble.

I would like mighty well to furnish you with the proof and if you will write me I will appreciate it.

Yours truly,

Uncle Jake
of the

KALAMAZOO VEGETABLE PARCHMENT CO.

KALAMAZOO, MICHIGAN

New Papers

Writing—	
White rag	15.40
White sulphite	11.30
Colored rag	15-40
Colored sulphite	10-30
Ledger—	
White rag	17-40
White sulphite	13-30
Colored sulphite	12-30
Colored rag	16-40
Bonds—	
White rag	16-40
White sulphite	9-30
Colored sulphite	9-30
Colored rag	15-40
Book—	
No. 1 S. & S. C.	6.50- 8.00
Machine finished	6.00- 8.00
English finished	6.25- 8.00
Coated and enameled	8.00-14.00
Lithograph, M. F.	9.00-15.00
Newsprint—	
Rolls, contract	3.25- ....
Rolls, transient	3.50- ....
Sheets	3.75- 4.00
Side runs	3.00- 3.25
Cover Stock—	
Coated, both sides	10.25
Coated, one side	10.15
Tissue—	
No. 1 white, 20x30	.75- .85
No. 2 white, 24x36	.70- .75
No. 1 manila, 24x36	.70- .75
Kraft	.90- 1.00
Wrapping—	
No. 1 Kraft	5.50- 6.25
No. 2 Kraft	5.00- 5.25
Boards—	New York and Chicago
Solid news	50.00-55.00
Straw	50.00-55.00
Plain chip	42.50-45.00
White coated chip	60.00-65.00
Manila coated chip	55.00-60.00
Binder's board	70.00-75.00

Chemical Pulp

(Continued from page 1335)

Easy bleaching sulphite	3.00-3.15
Unbleached sulphite, No. 1	2.75-3.00
News grade sulphite	2.65-2.75
Soda pulp, bleached	3.50-3.75
Mitscherlich, unbleached	3.25-3.75
Kraft, No. 1	2.90-3.15
Screenings, refined	1.50-1.75

Chemicals

Business of fairly good volume is reported in practically all the chemicals used by paper and pulp manufacturers. Not only is contract buying on a fair scale but spot demand is developing in a satisfactory way, and a steady price tone is observed throughout the market. Quotations on bleaching powder have been advanced to where some producers ask as high as 2.40 cents a pound f.o.b. works for spot shipments. Casein is steady at 13 to 15 cents per pound, while brimstone continues to fetch $16 a ton at mines.

Average quotations f.o.b. works are as follows:

Alum, lump ammonia	3.50- 3.75
Alum, lump starch	3.75- 4.00
Blanc fixe, powder	3.75- 4.25
Bleaching powder	2.00- 2.40
Brimstone (long ton, at mine)	15.00-16.00
Casein (duty paid)	13.00-15.00
Caustic soda, spot delivery	3.10- 3.20
China clay, domestic washed	12.00-16.00
China clay, foreign	15.00-20.00
Rosin, grade E	15.60
Satin white	2.00- 2.25
Soda ash, 58 per cent light (bags)	1.38
Starch, papermakers', in bags	3.22
Talc (ton)	16.00-18.00

The Coming Power Show

The Fourth National Exposition of Power and Mechanical Engineering will open at 2 p. m. on Monday, November 30, 1925, at the Grand Central Palace, New York City. It will extend through the week, ending December 5th, opening each day at noon.

The basic purpose of the Exposition is to bring together showings of manufacturers of power and mechanical equipment so that engineers and industrial executives may have an opportunity for comparative study of the outstanding developments in the field. The manner in which the Power Exposition has developed during the past three years is convincing proof that it is filling a useful place in the tremendous development in power generating and power using devices.

The decreased use of coal per ton of freight hauled on the railroads and the increased thermal efficiencies of the central power stations furnish two examples of the manner in which modern engineering is keeping step with the increased demand for greater economy in the use of fuel. The constantly turbulent condition of the coal industry furnishes incentive to all manufacturers who use power and heat to devote increasing attention to better economies in their power plants. In assisting to secure these economies the Power Show fulfills an important function in that it brings together all types of equipment under one roof with competent interpreters of the importance of each device in attendance.

Devices to increase the effectiveness and economy of combustion will be presented at the show in distinguished array. Air preheaters, pulverized fuel equipment of all types, stokers, water-cooled boiler furnace walls, soot blowers, and draft apparatus will be shown. One of the features of this group of exhibits will be the showings of recent developments in the more economical use of pulverized fuel. This will include new designs of boiler furnaces, several new types of burners for pulverized fuel and the latest achievements in crushing and drying coal.

The addition of a comprehensive list of heating and ventilating equipment is an important factor in the broadening scope of the Power Show, for the heating and ventilating problem in a factory of an industry is closely allied to the power problem and advantages in each are applicable to the other.

Machine tools and equipment used in machine shop practice will form a large and important group of exhibits among which are many new and novel machines.

The managers of the show are Fred W. Payne and Charles F. Roth, with offices in the Grand Central Palace.

W. Bersch has resigned as treasurer and director of William Hartmann & Company, Inc., paper importers of 342 Madison avenue, New York, and is now connected with Fred C. Strype, paper merchant and importer of 320 Broadway, New York.

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Bleached Sulphite

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Canadian Kraft Limited, Three Rivers, Canada
Dealers in Wayagamack Kraft Pulp

Howard Smith Paper Mills, Montreal, Quebec
EASTERN AGENTS of Sulphite Pulp. Made by
Port Huron Sulphite & Paper Co., Port Huron, Mich.

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grown in the forests
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SELLING AGENTS
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Unbleached Sulphite 50 tons daily
Kraft Pulp 50 tons daily

Our pulp is made from Canadian Spruce
We ship in sheets, baled

BATHURST, NEW BRUNSWICK, CANADA

Import and Export Markets

EXPORTS

Exports of paper and paper products from the United States during the month of August, 1925, were valued at $1,947,646, a decrease of 5 per cent under the July last exports, and of 9 per cent in comparison with August of last year, according to the Paper Division of the Department of Commerce. The principal decreases in comparison with July were shown in exports of book paper, surface coated paper, box board, sheathing and building paper, wallboard of paper or pulp, wall paper and carbon paper. These losses were offset to some extent by increased exports of other classes of paper, principally newsprint, greaseproof and waterproof papers, papeteries, writing paper, paper bags, and cash register and adding machine paper.

Exports of newsprint, after a sharp drop in July to 1,936,000 pounds, rose again in August to 3,116,000 pounds, compared with 2,949,952 pounds exported in August, 1924. Exports of uncoated book paper in August amounted to 1,322,739 pounds, against 1,792,852 pounds in the same month a year ago, while surface coated paper exports in August were 159,305 pounds, contrasted with 383,812 pounds in August, 1924.

Kraft wrapping paper was exported from the U. S. in August to the amount of 40,595 pounds, against 27,574 pounds a year ago, and other wrapping paper exports aggregated 2,177,440 pounds, contrasted with 2,134,437 pounds in August a year ago. Exports of papeteries or fancy writing paper in August were 66,124 pounds, against 74,189 pounds in August last year, while other writing paper exports amounted to 384,064 pounds, compared with 411,135 pounds in August, 1924. Shipments of tissue and crepe paper out of the country last August totaled 280,949 pounds, against 344,670 pounds in August a year ago.

IMPORTS

Wood Pulp

The market situation in foreign wood pulp continues very strong. There is a firm tone characterizing prices, with some classes of pulp tending higher, while the statistical position is exceptionally bullish. Reports tell of pronounced strength in the primary markets abroad, particularly in Scandinavia, where manufacturers are sold up a far ways into the future and are encountering an excellent demand for pulp of all kinds.

It is a fact, according to reports from authoritative sources, that mills in Sweden have disposed of fully 60 per cent of their entire 1926 production of sulphite and kraft. Probably never before have Scandinavian manufacturers been so heavily sold ahead this early in the winter season, and the fact that they are, with a resultant limitation placed on available supplies, insures a firm pulp market for some months to come, according to members of the trade. Most importers in New York look for higher prices on pulp. It is felt that when the Baltic closes for the winter and navigation is halted and pulp stops moving out of Sweden, somewhat of a scarcity of desirable qualities of foreign pulps may develop in the United States and a consequent rise in prices will occur. On the other hand, it is admitted generally that paper and board manufacturers here have anticipated their wants and have bought pulp freely for forward shipment from abroad, even as late as next fall.

As matters now shape up, there is virtually no more supply of sulphite and kraft pulp for sale or shipment from Sweden during the balance of this year, or for shipment between now and last open water shipment. The great bulk of activity in the trade in recent weeks has involved supplies for first open water shipment from abroad next spring or for later shipment. Consumers in the U. S. evidently have come to realize fully the strong statistical condition prevailing abroad and have purchased in heavy volume. A factor of much importance also is that mills in Sweden have enjoyed a very large demand from other sources, more especially the artificial silk industry throughout Europe as well as paper mills in England and other European countries. It is stated that spot stocks of unsold pulp in the United States are close to nil; that the supplies which have been coming in have gone direct to paper and board mills against contracts, and that little or no pulp has been sent here on consignment or for the account of import concerns.

Imports of pulp into the U. S. continue on a large scale. During August total importations of chemical pulps amounted to 95,512 tons, compared with 96,341 tons imported in July. August imports brought the total for the first eight months of 1925 up to 790,398 tons, giving a monthly average of 98,799 tons, contrasted with a monthly average of imports of 85,891 tons in the same period a year ago. Total imports of ground wood in the first eight months of the current year amounted to 183,856 tons, giving a monthly average of 22,982 tons, compared with 15,417 tons average in the first eight months of 1924.

Prices of bleached sulphite have stiffened to a degree where about the lowest figure quoted by importers in New York on prime sulphite is 4.15 cents a pound ex dock New York or other American Atlantic ports. Extra fine qualities of bleached sulphite are quoted up to 4.50 cents on the dock. Strong prime unbleached sulphite is quoted at 3 cents and higher, some mill brands being held for 3:15 and 3.25 cents ex dock, while easy bleaching sulphite ranges in price from 3.20 to 3.40 cents a pound. Standard Swedish kraft of prime grade is selling at around 3.05 cents ex dock New York, with sales at as high as 3.25 cents reported in some cases. Quotations on foreign ground wood of Scandinavian origin are around $35 a ton ex dock New York.

Receipts at the port of New York during October and current market quotations ex dock New York follow:

Bleached sulphite, No. 1	4.10- 4.50
Unbleached sulphite, strong, No. 1	3.00- 3.25
Unbleached sulphite, No. 2	2.75- 3.00
Easy bleaching sulphite	3.20- 3.40
Mitscherlich unbleached, genuine	3.40- 3.60
Mitscherlich unbleached, ordinary	2.75- 3.00
Kraft, standard Swedish	3.00- 3.25
Groundwood, per ton	33.00-36.00

Bunkley, Dunton & Co., 3,700 bls. from Stugsund, 2,750 Gefle, 1,000 Swedish ports, 500 Sundsvall and 250 Trieste; J. Andersen & Co., 2,500 bls. from Stugssund and 5,340 Greaker; Central Union Trust Co., 300 bls. from Stugsund; Castle & Overton, 333 bls. from Rotterdam, 1,940 Bremen and 203 Swedish ports; Pagel, Horton & Co., 200 bls. from Skutskar, 2,500 Gefle and 4,200 Swedish ports; Scandinavian Pulp Agency, 4,975 bls. from Skutskar, 1,625 Sundsvall, 510 Gothenburg and 3,883 Swedish ports; Tidewater Paper Mills Co., 6,267 bls. ground wood from Murray Bay, and 11,697 Sheet Harbor; Ira L. Beebe & Co., 1,060 bls. from Bremen; E. M. Sergeant Co., 2,806 bls. from Gothenburg and 475 Oslo; Price & Pierce, 1,200 bls. from Gothenburg; National City Bank, 2,500 bls. from Sundsvall; W. Hartmann & Co., 321 bls. from Hamburg; A. J. Bracher & Co., 347 bls. from Hamburg; Johaneson, Wales & Sparre, 2,730 bls. from Hernosand, 457

Bleached and Unbleached
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KRAFT PULPS

Foreign and Domestic
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WOOD

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OF
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MITTS & MERRILL GRAVITY FEED SHREDDER

Reduces Paper Stock

Magazines, books, old paper and boxboard, frozen or dried pulp laps run through the Mitts & Merrill Gravity Feed Shredder are reduced to particles which hydrate readily when put into the beaters.

Built in six sizes with spouts ranging from 18" to 45" wide

Reduces Costs

Because shredding in the Mitts & Merrill Gravity Feed Shredder expedites hydration in the beaters there is considerable saving made in power. Thus we see that the shredder here illustrated reduces costs while it is reducing paper stock.

We will be glad to furnish details upon request.

We also build a 100% efficient "Hog" to reduce pulp mill bark and wood refuse

MITTS & MERRILL 1013 Tilden St. SAGINAW, MICH.

Gothenburg, 1,750 Bremen and 1,600 Swedish ports; Borregaard Co., 300 bls. from Oslo; International Acceptance Bank, 1,560 bls. from Rotterdam; Buck, Kaier & Co., 600 bls. from Copenhagen; Merchants National Bank of Baltimore, 250 bls. from Greaker; M. Gottesman & Co., 1,875 bls. from Sundsvall; Brown Bros. & Co., 500 bls. from Swedish ports; Lagerloef Trading Co., 396 bls. from Kotka; Order, 500 bls. from Gebe, 748 Raumo, 4,000 Gothenburg, 125 Greaker, 1,366 Kotka, 2,455 Traugsund and 599 Helsingfors.

Paper Stock

Despite the fact that importers report a rather slow demand from paper mills for foreign raw material, supplies of rags, bagging, old rope, etc., continue to come into the United States in fairly large tonnage, judging from imports through the port of New York during October. There were many large lots of rags received, and at least usual amounts of old bagging and rope as well as jute waste, old paper and other miscellaneous papermaking material.

Imports of papermaking rags in August, according to Department of Commerce statistics, amounted to 50,793,623 pounds, against 54,867,320 pounds imported in July last and 37,402,900 pounds in August, 1924. During the first eight months of the current year imports of papermaking rags totaled 403,407,784 pounds, against 304,028,529 pounds in the same time of 1924, while imports of waste bagging and waste paper in the same period were 80,378,578 pounds, compared with 68,108,137 pounds last year, and of old rope and miscellaneous paper stock 46,790,647 pounds, against 65,877,982 pounds a year ago.

Imports of all kinds of papermaking stock through the port of New York in October, with names of consignees, compiled from manifests of steamers reaching that port during the month, were as follows:

Old Rope

Brown Bros. & Co., 612 coils and 476 bls.; National City Bank, 18 bls.; J. Chalfin & Co., 217 rolls and 5 bls.; William Steck & Co., 115 bls.; W. Schall & Co., 50 bls. and 89 coils; Ellerman's Wilson Line, 224 coils; American Express Co., 14 coils; Irving Bank-Columbia Trust Co., 67 bls. and 65 coils; Stone Bros. Co., 9 bls. and 8 coils; E. J. Keller Co., 113 bls.; Order, 77 bls.

Old Bagging

Mechanics & Metals National Bank, 313 bls.; Bank of New York & Trust Co., 165 bls.; New York Trust Co., 86 bls.; Chase National Bank, 3,464 bls.; L. H. Abenheimer, 65 bls.; Salomon Bros. & Co., 206 bls.; Castle & Overton, 270 bls.; British Bank of South America, 365 bls.; A. W. Fenton, Inc., 482 bls.; E. Butterworth & Co., 35 bls.; Darmstadt, Scott & Courtney, 28 bls.; Seaboard National Bank, 32 bls.; Irving Bank-Columbia Trust Co., 17 bls.; Goschens & Cunliffe, 101 bls.; S. Birkenstein & Sons, 235 bls.; Equitable Trust Co., 66 bls.; Brown Bros. & Co., 31 bls.; George W. Millar & Co., 185 bls.; Chemical National Bank, 73 bls.; E. J. Keller Co., 1,211 bls.; Order, 828 bls.

Rags

Atterbury & McKelvey, 440 bls.; E. J. Keller Co., 4,445 bls.; J. J. Patricof, 60 bls.; L. H. Abenheimer, 60 bls.; Stone Bros. Co., 725 bls.; C. R. Spence & Co., 292 bls.; Atlas Waste Mfg. Co., 405 bls.; Atterbury Bros. 261 bls.; Victor Galaup, Inc., 34 bls.; Daniel M. Hicks, Inc., 100 bls.; William Steck & Co., 36 bls.; American Wool Stock Co., 296 bls.; Darmstadt, Scott & Courtney, 34 bls.; Hartig Pulp Co., 44 bls.; Castle & Overton, 443 bls.; J. Cohen & Sons Co., 37 bls.; Ideal Manufacturers Supply Co., 28 bls.; Strupp & Co., 198 bls.; Salomon Bros. & Co., 69 bls.; Gustav Straus, 6 bls.; J. M. Jaffe, 134 bls.; S. Birkenstein & Sons, 234 bls.; A. H. Searle, 185 bls.; Martin Nathan & Co., 14 bls.; W. Schall & Co., 77 bls.; Robert Bishop Mfg. Co., 100 bls.; L. Muscat, 111 bls.; J. B. Moors & Co., 216 bls.; P. Garvan Co., 352 bls.; S. Silberman Co., 50 bls.; H. Muehlstein & Co., 48 bls.; Jaffe Products Co., 53 bls.; S. Green, 9 bls.; George M. Graves Co., 26 bls.; Rudoof Wolf, 80 bls.; George W. Millar & Co., 443 bls.; Maurice O'Meara Co., 20 bls.; National Bank of Commerce, 604 bls.; Anglo-South American Trust Co., 634 bls.; Mechanics & Metals National Bank, 2,150 bls.; Equitable Trust Co., 575 bls.; Garfield

Starch

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Starch

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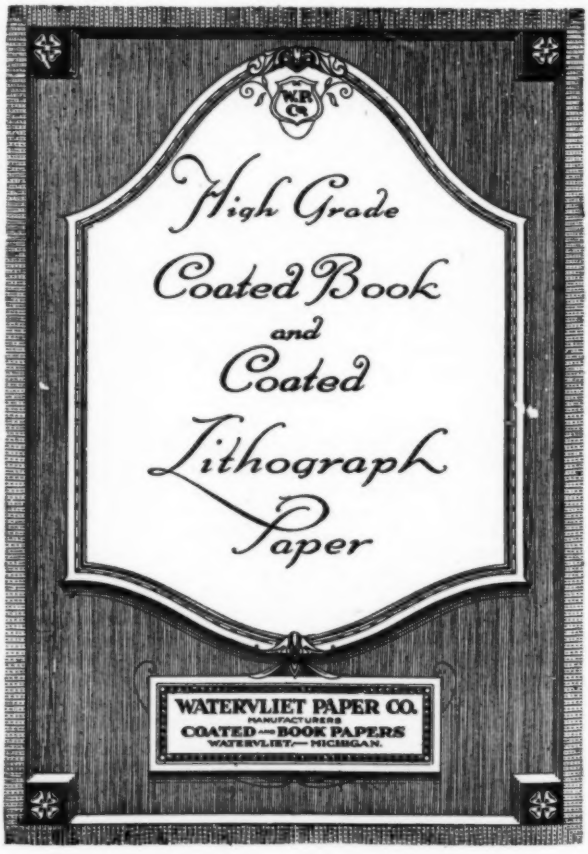

National Bank, 648 bls.; National City Bank, 361 bls.; Irving Bank-Columbia Trust Co., 233 bls.; Chase National Bank, 2,356 bls.; Central National Bank of Savings & Trust Co., 80 bls.; Philadelphia National Bank, 88 bls.; Chemical National Bank, 1,028 bls.; State Bank, 68 bls.; New York Trust Co., 49 bls.; Bank of New York & Trust Co., 49 bls.; Paterson National Bank, 16 bls.; Brown Bros. & Co., 2,981 bls.; A. W. Fenton, Inc., 3,619 bls.; Amsinck, Sonne & Co., 238 bls.; American Express Co., 38 bls.; The Barrett Co., 63 bls.; Murray Freighting Corp., 70 bls.; R. F. Downing & Co., 32 bls.; Order, 4,897 bls.

Miscellaneous Paper Stock

Anglo-South American Trust Co., 392 bls.; Milton Snedeker Corp., 154 bls.; Hoffman Corr Mfg. Co., 27 bls.; Hanson & Orth, 1,817 bls.; George M. Graves Co., 23 bls.; Equitable Trust Co., 528 bls.; Irving Bank-Columbia Trust Co., 85 bls.; National City Bank, 109 bls.; E. Butterworth & Co., 232 bls.; E. J. Keller Co., 210 bls.; Order, 2,295 bls.

Paper

Imports of paper into the United States keep on a fairly large scale, judging from arrivals through the port of New York during October. There were some good-sized consignments of printing and wrapping paper received during the month, and also normal amounts of cigarette, filter, hanging, writing and other kinds of paper.

Imports of paper of all kinds into the U. S. in August, acocrding to Department of Commerce figures, amounted to $9,498,805 in value, compared with imports valued at $9,241,475 in the same month last year. Imports during the first eight months of 1925 were valued at $78,891,825, against $78,684,725 in the corresponding period of 1924.

Paper imports of all classes through the port of New York in October follow, these dates being taken from the manifests of vessels arriving at that port during the month:

Printing

Chemical National Bank, 193 rolls from Hamburg; W. Hartmann & Co., 84 rolls from Rotterdam; C. Steiner, 70 cs. from Hamburg; Titan Shipping Co., 45 cs. from Southampton; P. C. Zuhlke, 133 cs. from Antwerp; C. B. Richardson & Co., 68 rolls from Hamburg; Gallagher & Ascher, 25 cs. from Hamburg; Sutherland International Dispatch, 18 bls. from Glasgow; Perry, Ryer & Co., 86 cs. from Glasgow; Keuffel & Esser Co., 93 rolls from Hamburg; B. F. Drakenfeld & Co., 27 cs. from Liverpool; Martin & Bechtold, 23 cs. from Bremen; Vernon Bros. & Co., 44 bls. from Oslo; J. P. Heffernan Paper Co., 504 bls. from Trieste and 527 bls. from Gothenburg; Republic Bag & Paper Co., 29 bls. from Hamburg; Irving Bank-Columbia Trust Co., 2 bls. and 462 rolls from Hamburg; G. W. Sheldon & Co., 2 cs. from Southampton; Norwegian Paper Mills, 605 rolls from Oslo; H. Reeve Angel & Co., 148 rolls from Bremen; Perkins-Goodwin Co., 39 cs. from Glasgow and 9 rolls from Hamburg; C. G. Keferstein, 14 cs. from Havre and 91 rolls from Hamburg; P. Puttmann, 30 cs. from Havre and 4 cs. from Antwerp; Parsons & Whittemore, 633 rolls from Kotka; Maurice O'Meara Co., 205 cs. and 53 bls. from Kotka; Order, 53 cs. from Antwerp, 1,158 rolls and 35 bls. Bremen, 2,158 rolls Corner Brook, N. F., 17 rolls Hamburg, 2,078 rolls, 271 cs. and 212 bls. Kotka.

Wrapping

F. L. Kraemer & Co., 40 cs. from Hamburg; Rohner, Gehrig & Co., 52 bls. from Hamburg; C. K. MacAlpine & Co., 143 rolls from Gothenburg; Maurice O'Meara Co., 244 bls. from Gothenburg; Gilbert Paper Co., 5 rolls and 59 bls. from Gothenburg; Arkell Safety Bag Co., 362 rolls from Gothenburg; J. P. Heffernan Paper Co., 195 bls. from Gothenburg; Borregaard Co., 42 rolls and 51 bls. from Gothenburg; New York Trust Co., 26 bls. from Trieste; E. L. Garvin & Co., 4 cs. from Antwerp; E. Dietzgen & Co., 14 cs. from Rotterdam; International Forwarding Co., 47 cs. from Rotterdam; Blauvelt Wiley Paper Mfg. Co., 21 bls. from Glasgow; National City Bank, 18 bls. from Hamburg; Steiner Paper Corp., 10 cs. from Greaker; R. Cushman & Co., 3 cs. from Genoa; F. C. Strype, 199 cs. from Rotterdam and 6 cs. and 2 rolls from Antwerp; Brown Bros. & Co., 50 bls. from Hamburg; International

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Old Plates RECLOSED and RECUT to accurate gauge
UNION BRONZE SCREWS for Screen Plates
Immediate Delivery of the Largest Orders. Satisfaction Guaranteed

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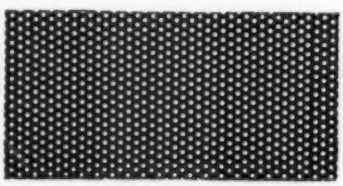
Perforated Metal Screens for Pulp and Paper Mills



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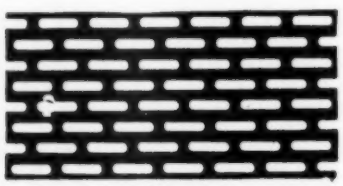
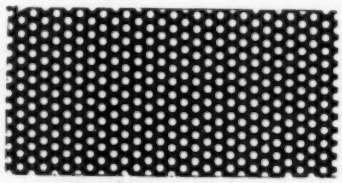


1/8 x 1/2" Slots



3/32 inch round

Steel, Copper, Brass, Bronze and other alloys punched for Centrifugal and Rotary Screens, Pulp Washers, Drainer Bottoms, Filter Plates, etc.

CHARLES MUNDT & SONS **57-65 Fairmount Avenue, Jersey City, N. J.**

Acceptance Bank, 157 bls. from Hamburg; Order, 378 bls. from Hamburg, 241 bls. Rotterdam and 93 rolls London.

Cigarette

DeManduit Paper Corp., 726 cs. from St. Nazaire; American Tobacco Co., 2,600 cs. from Bordeaux; Standard Products Corp., 124 cs. from Havre; M. Spiegel & Co., 24 cs. from Bordeaux; P. J. Schweitzer, 175 cs. from Marseilles and 9 cs. from Havre; Equitable Trust Co., 6 cs. from Trieste; Order, 2 cs. from Bordeaux.

Writing

Guibont Freres & Co., 32 cs. from Havre; J. W. Hampton, Jr., & Co., 22 cs. from Hamburg; Distinctive Writing Paper Co., 3 cs. from Southampton; Primus Paper Products Co., 3 cs. from Glasgow; Meadows, Wye & Co., 17 pkgs. from Liverpool; Defiance Sales Corp., 10 cs. from Marseilles; J. C. Robold & Co., 30 cs. from London; Globe Shipping Co., 50 cs. from Bremen; Halle Bros., 2 cs. from Havre; R. Weill & Co., 2 cs. from Havre; F. L. Kraemer & Co., 4 cs. from London.

Drawing

International Forwarding Co., 5 cs. from Hamburg; Keuffel & Esser Co., 4 cs. from Hamburg and 17 cs. from London; E. Dietzgen & Co., 73 cs. from Hamburg and 2cs. from London; Devoe & Raynolds Co., 2 cs. from London; Favor, Ruhl & Co., 12 cs. from London.

Filter

H. Reeve Angel & Co., 11 cs. from London; E. Fougera & Co., 81 cs. from Bordeaux; A. Giese & Son, 21 bls. from Bordeaux; Orbis Products Trading Co., 11 bls. from Bordeaux; G. Schleicher & Schull Co., 7 cs. from Hamburg; Zinkeisen & Co., 3 cs. from Hamburg.

Tissue

F. C. Strype, 36 cs. from Liverpool; J. B. Mast & Co., 3 cs. from Genoa; J. C. Robold & Co., 12 cs. from Liverpool.

Photo

P. C. Zuhlke, 254 cs. from Antwerp; P. Puttmann, 101 cs. from Antwerp; Gevaert Co. of America, 175 cs. from Antwerp; J. J. Gavin & Co., 3 cs. from Liverpool; Defender Photo Supply Co., 2 cs. from Havana; Phoenix Shipping Co., 49 cs. from Hamburg; Globe Shipping Co., 353 cs. from Bremen; Order, 160 cs. from Antwerp.

Hanging

C. A. Haynes & Co., 15 bls. from Liverpool and 46 bls. London; A. C. Dodman Jr. & Co., 107 bls. from Liverpool, 16 pkgs. London, 67 bls. Southampton and 8 cs. Havre; American Shipping Co., 3 bls. from Liverpool; F. J. Emmerich & Co., 2 bls. from Hamburg and 13 bls. Liverpool; W. H. S. Lloyd & Co., 12 cs. from Liverpool; Titan Shipping Corp., 21 cs. from Southampton; Pennsylvania R. R. Co., 5 cs. from Havre; J. W. Hampton, Jr., & Co., 2 cs. from Havre; Baldwin Universal Co., 9 bls. from London; Bendix Paper Co., 47 cs. from Hamburg; R. F. Downing & Co., 6 bls. from London; Hudson Freighting & Shipping Co., 6 cs. from Southampton; F. & R. Trading Co., 542 rolls from Rotterdam and 1,253 bls. from Antwerp; Order, 10 bls. from Hamburg.

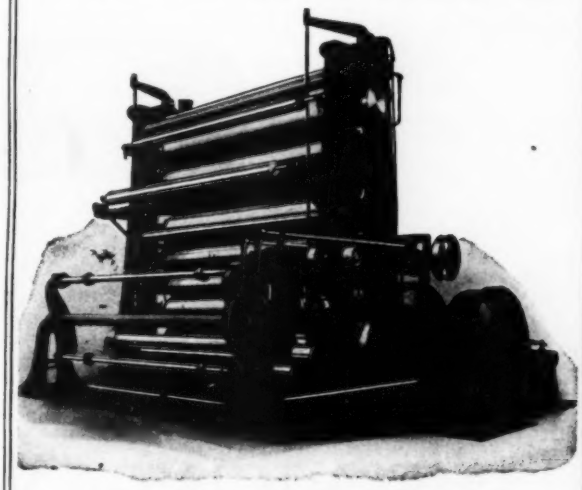
Board

Coty, Inc., 50 cs. from Havre; Adrian Vuyck, 411 rolls from Rotterdam; Bendix Paper Co., 103 cs. from Bremen and 63 cs. Hamburg; Metropolitan Import & Mfg. Co., 30 cs. from Bremen; Fibre Case & Novelty Co., 27 cs. from Gothenburg; O. M. Baxter, Inc., 35 cs. from Gothenburg; M. Meyerson, 27 bls. from Gothenburg; A. S. Zabriskie, 210 pkgs. from Rotterdam; Houbigant, Inc., 10 cs. from Havre; American Express Co., 65 bls. from Hamburg; Order, 2 cs. from London, 12,187 pkgs. Hernosand and 5 rolls Rotterdam.

Miscellaneous

J. R. Livermore, Inc., 13 bls. from Genoa; Japan Paper Co., 179 cs. from Genoa, 19 cs. Havre and 47 bls. Rotterdam; Second National Bank of Boston, 154 rolls from Antwerp; F. C. Strype, 28 cs. from Hamburg; Wilkinson Bros. & Co., 3 cs. from Hamburg; S. Haufling Co., 100 bls. from Hamburg; F. L. Kraemer & Co., 3 cs. from Liverpool and 5 cs. from Bremen; G. W. Sheldon & Co., 10 cs. from London; Bernard, Judae & Co., 8 cs. from Gothenburg; Whiting-Patterson Co.,

NORWOOD
SUPER CALENDERS



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NORWOOD ENGINEERING CO.
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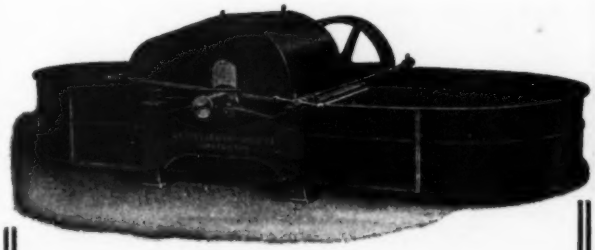

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Beating Engines
are Built
for
Heavy Duty

Dayton Beater and Hoist Co.
DAYTON, OHIO

"MICHIGAN" Combination Steel and Wood Pipe

LONG DISTANCE CONVEYOR OF WATER AND PAPER STOCK IN PAPER AND PULP MILLS—Specially Adapted to Carry Sulphite, Ground Wood and "White Water"

Eighteen reasons why you should use "Michigan" combination steel and wood pipe

1—Durability of Wood Shell. 2—Sanitary. 3—20% more capacity than Cast Iron Pipe. 4—Simplicity in handling. 5—Light in weight. 6—Speed in laying. 7—Protects against freezing. 8—Not affected by Electrolysis. 9—Rigid inspection of materials. 10—Efficient construction of stave. 11—Strength of steel banding. 12—Protection of banding with asphalt coating. 13—Cannot burst under pressure. 14—Can be laid in a wet trench. 15—Short curves without specials. 16—Low installation and maintenance cost. 17—Responsibility of company. 18—Not affected by sulphur or chemical solutions.

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Boston, Mass.....Room 737, Oliver Bldg.
Cleveland, Ohio.....919 Ulmer Bldg.
Chattanooga, Tenn.....702 James Bldg.
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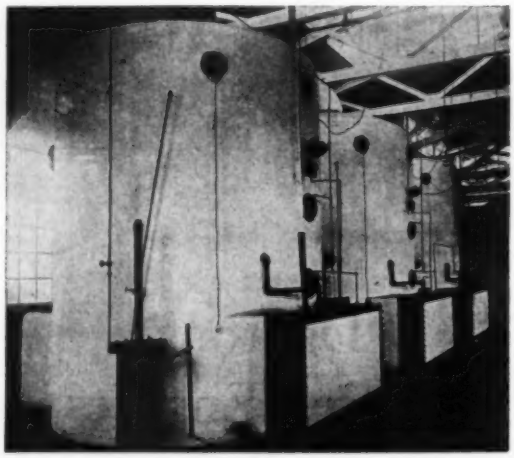
"Steel for Strength—Wood for Durability"



Triple effect illustrated above was installed fourteen years ago and is still going strong. As a result of its excellent work concentrating soda black liquor we have sold to the same concern sixteen large multiple effect evaporators.

FIFTY-EIGHT per cent of orders for Zaremba Evaporators are repeats. This is not due to superhuman salesmanship, but to the fact that they are designed to exactly suit conditions and are carefully constructed.

As a result Zaremba Evaporators have acquired an enviable and deserved reputation for efficiency, durability and reliability.

Evaporators

for **Soda Black Liquor**
Sulphate Black Liquor
Sulphite Waste Liquor

ZAREMBA COMPANY

506 Crosby Building **BUFFALO, N. Y.**

11 cs. from Southampton and 2 cs. from Hamburg; Borden & Riley Paper Co., 7 cs. from Antwerp; Schenkers, Inc., 14 cs. from Hamburg; H. Reeve Angel & Co., 2 cs. from Yokohama; Dupont Cellophane Co., 16 cs. from Southampton; H. D. Catty Co., 3 cs. from Antwerp and 3 cs. from Hamburg; Whitfield Paper Works, 5 cs. from Kobe; Judson Freight Forwarding Co., 8 cs. from Havre; C. H. Boulin, 17 cs. from Havre; Canville & Boulin, 27 cs. from Havre; S. Gilbert, 11 cs. from Rotterdam; P. H. Petry & Co., 15 cs. from Rotterdam and 16 cs. from Havre; S. Stern, 23 cs. from London; Hensel, Bruckman & Lorbacher, 7 cs. from Havre; W. F. Collins & Co., 6 cs. from Havre; General Electric Co., 15 cs. from Genoa; R. F. Downing & Co., 3 cs. from Havre; H. DeMagnin & Co., 18 cs. from Havre; International Forwarding Co., 15 cs. from Hamburg; C. B. Richard & Co., 3 cs. from Bremen and 6 cs. from Havre; T. D. Downing & Co., 8 cs. from Hamburg.

Foreign Trade Opportunities

Additional information regarding the following foreign trade opportunities issued by the Bureau of Foreign and Domestic Commerce of the United States Department of Commerce may be obtained from the Bureau in Washington, D. C., or its branch offices. It is requested that the number of the inquiry be given at all times.

No. 16629—Bottles, cardboard, for holding milk. Hamburg, Germany. Purchase desired.

No. 16586—Machinery for paper, cardboard and printing industries. Leipzig, Germany. Agency desired.

No. 16590—Machinery for papermaking and paper-working. Breslau, Germany. Agency desired.

No. 16628—Overissued newspapers, and paper of various grades. Tegal, Java. Purchase desired.

No. 16633—Wrapping paper. San Pedro Macoris, Dominican Republic. Agency desired.

No. 16920—Blotting paper and cardboard for catalogue covers. Wurtemberg, Germany. Purchase desired.

No. 16963—Lithographed and embossed papers for box covers. Johannesburg, South Africa. Purchase desired.

No. 16962—Old newspapers. Bombay, India. Purchase desired.

No. 16964—Toilet paper. Johannesburg, South Africa. Purchase desired.

No. 17113—Paper bags, plain and printed. Buenos Aires, Argentina. Purchase desired.

No. 17112—Cardboard and cardboard boxes. Buenos Aires, Argentina. Purchase desired.

No. 17114—Machinery for making paper bags of various sizes. Geneva, Switzerland. Purchase desired.

No. 17112—Newsprint and paper of all kinds. Buenos Aires, Argentina. Purchase desired.

No. 17084—Paper. Rio de Janeiro, Brazil. Agency desired.

No. 17111—Paper sacks for cement and lime. Gorlitz, Germany. Purchase desired.

No. 17250—Machinery for making egg-case partitions. Melbourne, Australia. Purchase desired.

No. 17341—Paper bag making machines. La Paz, Bolivia. Purchase desired.

No. 17348—Paper bags, wrapping paper, etc. Santiago, Cuba. Agency desired.

No. 17346—Blotting paper. Cologne, Germany. Agency desired.

No. 17347—Parchment paper, glazed, colored and white, embossed and smooth, grease proof paper, glazed book print paper, newsprint paper, blotting paper and writing paper. Cologne, Germany. Agency desired.

No. 17280—Wallpaper. Caracas, Venezuela. Purchase desired.

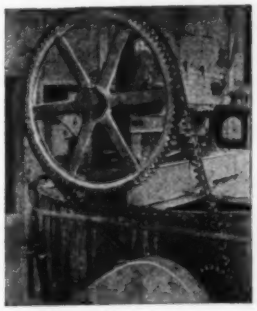
No. 17401—Waxed paper for wrapping bread. Chihuahua, Mexico. Purchase desired.

No. 17489—Paper of all kinds of printing and press work. Caracas, Venezuela. Purchase desired.

The Elbena Paper Corporation, of New York City, was incorporated under New York State laws a few days ago with a capital of 100 shares of common stock of no par value. The incorporators were H. M. Mann, T. F. Turley and T. F. Tormey, with J. A. Turley, of 233 Broadway, the attorney.

MORSE SILENT CHAIN DRIVES

Whether you buy power or generate it



Morse Silent Chain Drive from motor to line of soda recovery tanks.

Efficient application of power is quite as important as low cost per k.w. at the switchboard. Whether you drive direct from water wheels or from motors, efficient, reliable, durable power transmission and speed reduction.

MORSE—THE ORIGINAL ROCKER JOINT SILENT CHAIN offers

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Reliability, long life, low upkeep.

Morse Chain installations from ¼ to 5,000 H.P. aggregate more than 4,000,000 H.P. Speeds from 6,000 to 250 R.P.M. or slower. Especially effective on short centers.

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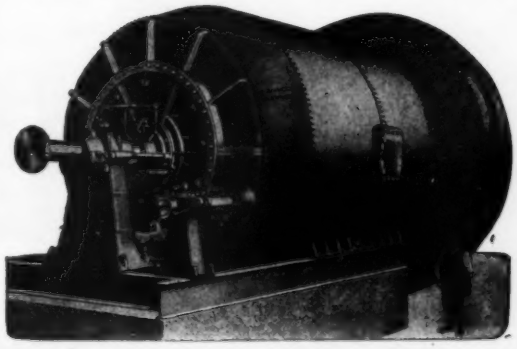
LEFFEL

TURBINE WATER WHEELS



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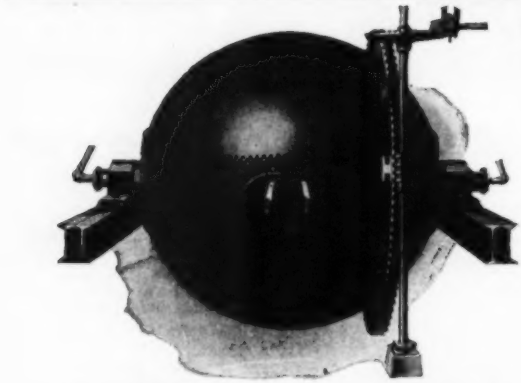

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ROTARY BLEACHING BOILERS
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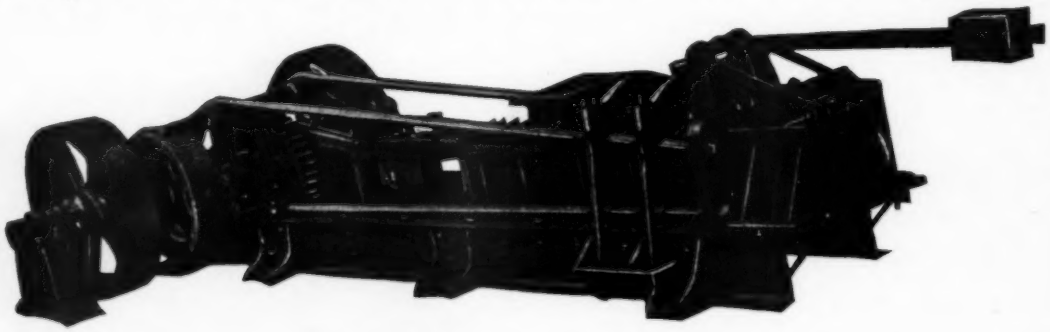

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